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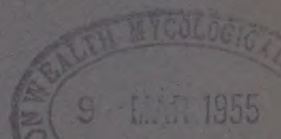
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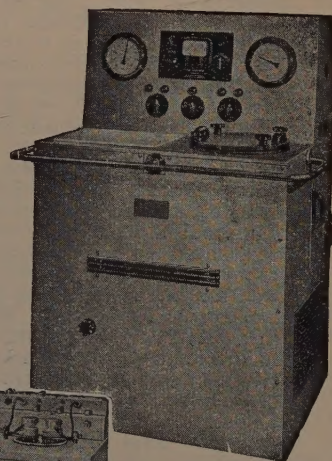
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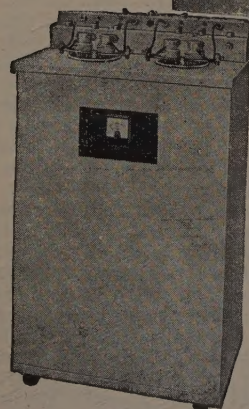
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ERRATA

- V.B. 24, abst. 4198, line 4 of title. For *J. Dairy Sci.*, please read: *Poult. Sci.*
- Ibid.* page 689, column 2, line 9 from below. For "pathology", please read: "surgery".
- V.B. 25, abst. 253. The pagination should read: 278-287.

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ABBREVIATIONS OF NAMES OF PUBLICATIONS

The abbreviations used in *Index Veterinarius* and *The Veterinary Bulletin* are those of the *World List of Scientific Periodicals published in the years 1900-1950*, 3rd Edit. (1952). London: Butterworths Scientific Publications.

List of Abbreviations

A.I.	— artificial insemination	lab.	— laboratory (-ories)
ant.	— anterior		
A.P.F.	— animal protein factor	max.	— maximum (-al)
approx.	— approximately	N.D.V.	— Newcastle disease virus
aq.	— aqueous	N.D.	— Newcastle disease
av.	— average		
B.A.L.	— British anti Lewisite (2,3 dimercaptopropanol)	r.b.c.	— red blood corpuscles
b.p.	— boiling point	r.e.s.	— reticuloendothelial system
c.f.	— complement fixation	R.H.	— relative humidity
clin.	— clinical		
coeff.	— coefficient	s/c	— subcutaneous(ly)
conc.	— concentration	soln.	— solution
c.s.f.	— cerebrospinal fluid	suppl.	— supplement(s) (-ary)
diam.	— diameter	std.	— standard
dil.	— dilute(d)		
diln.	— dilution	temp.	— temperature
E.I.A.	— equine infectious anaemia	therap.	— therapeutic
equiv.	— equivalent	U.V.	— ultra-violet
ft.	— foot (feet) [measurement only]		
Hb.	— haemoglobin	vet.	— veterinary
H.I.	— haemagglutination inhibition	vol.	— volume
inj.	— injection(s)		
insol.	— insoluble	w.b.c.	— white blood corpuscles
Inst. (inst)	— Institute	wt.	— weight
i/m	— intramuscular(ly)		
i/p	— intraperitoneal(ly)	/	— per (e.g. wt./vol.; mg./lb. body wt.)
i/v	— intravenous(ly)		
i/d	— intradermal(ly)		

Bulletins on disease subjects written for farmers and "popular" articles of a similar nature are not included in the *Veterinary Bulletin*. Those of a sufficiently important nature are, however, included in *Index Veterinarius*; so also are certain review articles, presidential addresses, congress proceedings, etc., where the title conveys as much information as could be given in an abstract of a few lines. For information of this nature, readers of the *Veterinary Bulletin* are referred to *Index Veterinarius*, where titles of all publications indexed by the bureau are fully cross-referenced.

A list of annotations and reviews, classified according to subject, is now given in *Index Veterinarius*, being inserted at the end of each number. Such papers will not necessarily be dealt with in the *Veterinary Bulletin*.

The Editor will be glad to receive publications relating to Veterinary Science and cognate subjects in order that they may be dealt with in the *Veterinary Bulletin*.

Reports of Departments, Special Reports, reprints, etc., etc., should be sent as soon as they are issued.

Books for Review.

The Editor will be glad to receive books for review in the *Veterinary Bulletin*.

THE VETERINARY BULLETIN

Vol. 25]

March, 1955

[No. 3

DISEASES CAUSED BY BACTERIA AND FUNGI

FAHEY, J. E. (1954). **An outbreak of staphylococcal arthritis in turkey poults.**—*Poult. Sci.* 33, 661-664. [Author's summary modified.] 561

F. described an outbreak of arthritis due to *Staph. pyogenes* var. *aureus* amongst 400 turkey poults aged 10 days, in which 81% of the birds were affected. A single injection of a preparation containing 10,000 units of penicillin, 2 mg. streptomycin, and 2 mg. terramycin per dose, followed by the administration of terramycin in the food at a conc. of 200 g. per ton for 7 days, resulted in complete cessation of symptoms, and recovery of affected birds.

MURPHY, J. M. & STUART, O. M. (1954). **The swab exposure of cows to *Streptococcus agalactiae* while protected from infection by means of penicillin.**—*Cornell Vet.* 44, 349-355. 562

Previous work [*V.B.* 24, 663 & 25, 267] showed that the bovine teat canal was often capable of resisting implantation of some 10^6 – 10^7 *Str. agalactiae* in that infection followed in only 34% of quarters. The present report concerned the effect of swab-induced implantation in 2 susceptible and 2 resistant cows—all with and without the use of protective parenteral penicillin. [The dosage was not clear, but mastitis was treated with 3×10^6 units 12-hourly for 6–7 days.] In the resistant cows similar exposure patterns were obtained with or without penicillin but, in the susceptible cows, the negative pattern under penicillin took less time and *Str. agalactiae* was recovered for 2–3 milkings, compared with 2–5 in resistant cows.

—MALCOLM WOODBINE.

POUNDEN, W. D. & FRANK, N. A. (1954). **A comparison of increase in numbers and acid production as measures of resistance of milk to *Streptococcus agalactiae*.**—*Cornell Vet.* 44, 437-441. [Authors' summary modified.] 563

The authors compared two measures of the resistance of milk samples to *Str. agalactiae*, namely, the length of incubation time required, following inoculation with a limited number of organisms, for multiplication to be detected; and the quantity of sodium hydroxide required to neutralize the acid formed in 10 ml. milk by *Str. agalactiae* during 24 hours' incubation.

Quarter samples from 10 cows and composite samples from two additional animals were divided into two groups comprising the samples from animals requiring less than and more than 3 ml. 0.1 N. NaOH, to neutralize the acid formed in them. The average for the 24 samples of the first group was 2.23 ml. and for the latter 3.94 ml. Similar average figures of approx. 4 hours were obtained for both groups for the time required for first recovery. They concluded that the two methods were not comparable as measures of the resistance of milk to the action of *Str. agalactiae*.

FIELD, H. I., BUNTAIN, D. & DONE, J. T. (1954). **Studies on piglet mortality. I. Streptococcal meningitis and arthritis.**—*Vet. Rec.* 66, 453-455. [Authors' summary modified.] 564

Streptococcal meningitis and arthritis is a specific clinical entity occurring in piglets between 2–6 weeks of age. It is characterized in some cases by partial or complete inability to maintain balance and in others by suppurative arthritis. Early cases of infection responded to treatment with penicillin, to which the streptococcus was shown to be sensitive by *in vitro* tests.

Infection may be confined to a single litter in a piggery, although in some herds the disease may appear in successive litters over a period of many months. Housing appeared to play little or no part in the spread of infection. The streptococcus isolated from outbreaks of the disease did not fall into any of the Lancefield's groups. It was alpha

haemolytic on sheep blood agar, beta haemolytic on horse blood agar, and it split aesculin.

The disease was reproduced in piglets by the intravenous or subdural injection of culture.

HÜBNER, K. (1954). Vergleichende Betrachtung der Massnahmen zur Bekämpfung der Rindertuberkulose in den Ländern des Bundesgebietes. [Comparison of methods for the control of TB. in cattle in the Länder of Germany.]—*Rindertuberkulose*, 3, 12-27. 565

There is now a voluntary scheme for the eradication of bovine TB. in Western Germany, based on the tuberculin test and clinical examination. H. described differences in the scheme in each of the 10 States of Western Germany.—W. G. SILLER.

BRODHAGE, H. & BOURGEOIS, E. (1954). Die Hämagglutinationsreaktion nach Middlebrook und Dubos bei der Rindertuberkulose. [The haemagglutination test described by Middlebrook and Dubos in TB. in cattle.]—*Die Rindertuberkulose*, 3, 78-83. 566

The haemagglutination test described by Middlebrook and Dubos was used on 200 tuberculous cattle. In agreement with the findings of previous authors, an agglutination titre of 1:80 was regarded as evidence of advanced TB.; a titre of 1:20 was regarded as positive. The authors stated that Johne's disease and vaccination with Strain 19 of *Br. abortus* sometimes caused a non-specific reaction.

—W. G. SILLER.

ERTÜRK, O. (1952). Sığırlarda tüberküloz'un süt ve kan serumlarının serolojik yoklamalarla teşhisi ve meme tüberkülozunun ayırd edilmesi. [Diagnosis of TB. in cattle by serological methods.]—*Thesis, Ankara*. pp. 71. [Abst. from German summary.] 567

Out of 78 cattle which reacted to tuberculin tests, serum from 76 was positive for TB. by the complement-fixation test, and serum from 71 was positive by the flocculation test. Milk whey was submitted to the c.f. test in order to confirm TB. of the udder in doubtful cases.

—R.M.

VAN OIJEN, C. F. & WILLEMS, G. B. R. (1953). Over het kweken van tuberkelbacillen uit rundersputa. [Cultivation of tubercle bacilli from bovine sputum.]—*Tijdschr. Diergeneesk.*, 78, 239-260. [English, French and German summaries.] 568

Acid-fast rods were cultured from 48 of 849 sputum samples from cattle, both on Loewenstein's medium and on that described by Stonebrink [*V.B.*, 23, 1800]. Only 54 of

these cultures remained acid-fast after they were held in boiling water for 3 min. Of these, 51 were pathogenic for g. pigs. Microscopic examination of scrapings from cultures with no visible growth is necessary.

—C. A. VAN DORSSEN.

HONEKER, F. (1954). Zum Vorkommen der Tuberkulose bei Ziegenböcken. [TB. in goats.]—*Dtsch. tierärztl. Wschr.*, 61, 178. 569

An account of an outbreak of pulmonary TB., with generalization, in 6 goats which were housed in a stable next door to 7 tuberculous bulls.—W. G. SILLER.

SINKOVIC, B. (1954). Tuberculosis in a grey teal duck (*Querquedula gibberifrons*).—*Aust. vet. J.*, 30, 215. 570

S. reported TB. in a grey teal and discussed the possible role of infected members of this species in the epidemiology of TB. in domestic fowls in certain areas of New South Wales.—K. G. JOHNSTON.

YAMANE, I., MINAMI, K. & YASUI, T. (1954). Un milieu simple pour la culture rapide et homogène du bacille tuberculeux, renfermant le Tween 80 comme seule source de carbone. [A medium for rapid culture of *Mycobacterium tuberculosis*, using Tween 80 as the sole source of carbon.]—*C. R. Soc. Biol., Paris*, 148, 769-770. 571

A simple, chemically-defined medium, using Tween 80 as the sole carbon source, gave nearly 5 times the growth of *M. tuberculosis* obtained in Dubos medium after 7 days. A culture of B.C.G. could be obtained in 10 days.

—A. SEAMAN.

GRAY, D. F., CLARKE, B. L. & MATTINSON, M. W. (1954). Detection of small numbers of tubercle bacilli in treated specimens. Comparison of mice, guinea pigs, and artificial media.—*Amer. Rev. Tuberc.*, 69, 92-103. 572

Examination of 133 specimens of sputum, urine and gastric contents revealed a marked superiority of mouse (strain C 57) and g. pig inoculation over smear and culture methods in detecting human type tubercle bacilli. The advantage of the mouse as a diagnostic animal lies in economy, speed of development of lesions, and ease of bacteriological examination of lesions; non-specific lung lesions, however, may affect up to 50%, and necessitate microscopic examination.—A. B. PATERSON.

VISHWANATHAN, R., GUPTA, K. C., PANDE, A., CHOPRA, I. C. & DEMONTE, A. J. H. (1954). Electron-microscopic study of the effect of

streptomycin on the cytology of tubercle bacilli.—*Amer. Rev. Tuberc.* **70**, 328-333.

[French and Spanish summaries.] 573

Streptomycin causes successive elongation, swelling, and cytoplasmic disintegration. The cell wall appears to be resistant to the action of the drug.—A. B. PATERSON.

LUZZATI, D. (1952). Action des agents tensio-actifs sur le bacille de Koch. Action des savons sur la croissance. [Effect of surface active substances on *M. tuberculosis*.]—*Ann. Inst. Pasteur*, **82**, 744-750. 574

Inhibition of growth of tubercle bacilli by soaps is caused by their surface adsorption, and, depending upon soap concentration, may be complete or partial. In the latter case, subsequent multiplication of the organisms is not affected.—A. B. PATERSON.

FROMAN, S., WILL, D. W. & BOGEN, E. (1954). **Bacteriophage active against virulent *Mycobacterium tuberculosis*. I. Isolation and activity.**—*Amer. J. publ. Hlth.* **44**, 1326-1333. [Authors' summary modified.] 575

The authors reported the discovery of bacteriophages active against *M. tuberculosis* of both human and bovine types. Four such phages were found among a series of 26 active against saprophytic acid-fast bacilli. These four were tested against 231 strains of tubercle bacilli, including 173 recently isolated strains. Altogether 192 strains of mammalian type were phage-sensitive and 25 were resistant; all of 14 avian types examined were resistant.

KARAILA, E. (1954). **On the possibility of staining the tubercle bacillus using surface-active agents.**—*Acta path. microbiol. scand.* **35**, 175-178. [In English.] 576

K. described a rapid method for staining tubercle bacilli at room temp., using a saturated solution of fuchsin in absolute alcohol, to which liquefied phenol, xylol, and Tween 80 had been added. The examination of about 500 smears by this method and by the Ziehl-Neelsen method gave closely comparable results.—R.M.

THOMAS, O. F., BORTHWICK, W. M., HORNE, N. W. & CROFTON, J. W. (1954). **Infection with drug-resistant tubercle bacilli.**—*Lancet*. **266**, 1308-1310. [Authors' summary modified.] 577

Drug-resistant tubercle bacilli were recovered from 9 human beings, although none of them had received previous chemotherapy with the relevant drug. In 4 of the patients the bacilli were primarily resistant to streptomycin, in 4 primarily to *p*-amino salicylic

acid, and in one were resistant to both drugs. Three, possibly 4, of the patients were known to have had TB. before the relevant drug was in general use. Their original bacilli were therefore presumed to have been drug-sensitive, and it was presumed that they had been superinfected with resistant bacilli.

FORTUN, F. G. (1954). Las hidrazidas en el tratamiento de la tuberculosis bovina. [Iso-nicotinic acid hydrazide in TB. in cattle.]—*Bol. Cons. Col. vet. Esp. Supl. cient.* **8**, 271-279. 578

F. claimed to have cured 17 out of 18 clinical cases of TB. in cattle with iso-nicotinic acid hydrazide at a dosage of 2 mg. per kg. live wt. daily for 35 days. He found that cattle reacting to tuberculin showed an increasing reaction during treatment and that the reaction persisted. —R. G. MARES.

KARLSON, A. G. (1954). **Regression of tuberculous lesions in guinea pigs infected with isoniazid-resistant tubercle bacilli.**—*Amer. Rev. Tuberc.* **70**, 531-532. 579

Three strains of iso-nicotinic acid hydrazide-resistant tubercle bacilli given intraperitoneally in large (0.1 mg. wet weight) dose to g. pigs produced internal lesions at the second week of infection which steadily regressed up to the 14th week. Persisting lesions were largely confined to the omentum and testes.—A. B. PATERSON.

GILLISSEN, G. (1954). Die synergistische Wirkung von INH und 6 (Sulfanilamido)-2, 4-dimethylpyrimidin gegen resistente Tuberkelbakterienstämme (in vitro-Versuche). [Synergistic action of iso-nicotinic acid hydrazide and sulphamerazine against resistant strains of tubercle bacilli in vitro.]—*Z. Hyg. InfektKr.* **139**, 498-504. 580

Iso-nicotinic acid hydrazide and sulphamerazine were synergistic in vitro against 8 strains of human type tubercle bacilli which were resistant to either iso-nicotinic acid hydrazide or streptomycin.—R.M.

HOBBY, G. L., LENERT, T. F. & AUERBACH, O. (1954). **The immunizing properties of an isoniazid-resistant mutant of the Vallée strain of *M. tuberculosis* as compared with BCG.**—*Amer. Rev. Tuberc.* **70**, 527-530. 581

G. pigs immunized with an iso-nicotinic acid hydrazide-resistant mutant of the Vallée strain of *M. tuberculosis* and challenged with a virulent Vallée strain, exhibited a degree of resistance comparable to that produced by B.C.G. Similar vaccination prolonged the survival time

of subsequently infected mice, but did not prevent ultimate development of TB. The mutant strain studied contained organisms of varying resistance to the drug and could not be regarded as suitable for immunization of human beings.

—A. B. PATERSON.

MACKANESS, G. B. (1954). **Artificial cellular immunity against tubercle bacilli. An effect of polyoxyethylene ethers (Triton).**—*Amer. Rev. Tuberc.* **69**, 690-704. [French and Spanish summaries.] **582**

Tubercle bacilli in monocytes from rabbits inoculated with polyoxyethylene ethers (similar to the non-ionic surface-active agent, "Triton W R 1339") grow slowly or not at all, while multiplication occurs readily in monocytes from untreated rabbits. The effect is not obtained by direct treatment of monocytes with detergent, but requires the mediation of the intact animal.

—A. B. PATERSON.

MULÈ, F. & GARUFI, L. (1954). **Aspetti istochimici della allergia tubercolare. [Histiochemical aspects of tuberculosis allergy.]**—*Boll. Ist. sieroter., Milan.* **33**, 69-74. [English summary.] **583**

Tests performed with the Warburg apparatus on liver tissue showed that the oxygen consumption rate increased in the presence of the breakdown products of tubercle bacilli. This increase was particularly evident in liver tissue from g. pigs with generalized TB. The reverse was observed when the animals had been inoculated with hydrolysed tubercle bacilli.

—I. MARTINI.

SEIBERT, F. B. & DUFOUR, E. H. (1954). **Comparison between the international standard tuberculins, PPD-S and old tuberculin.**—*Amer. Rev. Tuberc.* **69**, 585-594. [French and Spanish summaries.] **584**

When assayed in patients of high sensitivity, 1 ml. International Standard O.T. was found to be equivalent in potency to 1 mg. P.P.D.-S, but in patients of low sensitivity and using higher tuberculin strengths, 1 ml. I.S.O.T. was found to be equivalent to 4 mg. P.P.D.-S. These results suggest a qualitative difference between the preparations, both in gross composition and in the nature of their specific reactive principles. P.P.D.-S. and P.P.D. prepared at the Veterinary Laboratory, Weybridge, exhibited the same reactions at high and low dose levels, and are therefore qualitatively similar and of the same potency.

—A. B. PATERSON.

WATT, J. A. A. (1954). **Johne's disease in a bovine associated with the pigmented strain of *Mycobacterium johnei*.**—*Vet. Rec.* **66**, 387. [Abst. from author's summary.] **585**

W. described the P.M. findings, histology and bacteriology of naturally occurring Johne's disease in a bullock, caused by the pigmented strain of *M. johnei*. The infection was transmitted to six-month-old sheep by oral dosage with intestinal tissue from the bullock, the resulting lesions being typical of those caused by the pigmented type of organism.

OLDS, R. J. & LEWIS, F. A. (1954). **Melioidosis in goats. The use of agglutination and melioidin tests in diagnosis.**—*Aust. vet. J.* **30**, 253-261. **586**

In the Townsville area of North Queensland melioidosis was found in 5 of 6 goat herds investigated; it was usually chronic. Of 27 animals in which lesions were found P.M., 19 manifested no clinical signs. The mediastinal lymph nodes, spleen and lungs were the commonest sites of lesions. The histopathology of chronic lesions was similar to that of chronic glanders. The agglutination test was of no value in diagnosis but a melioidin skin test showed promise.—K. G. JOHNSTON.

BRUNER, D. W. & FABRICANT, J. (1954). **A strain of *Moraxella anatipestifer* (*Pfeifferella anatipestifer*) isolated from ducks.**—*Cornell Vet.* **44**, 461-464. [Authors' summary modified.] **587**

The authors examined an organism isolated from ducks that was similar to that described by Hendrickson and Hilbert as *Pfeifferella anatipestifer* [*V.B.* **3**, p. 178]. It required carbon dioxide for growth on primary isolation. It did not appear to be a primary pathogen for ducks. They suggested that it be named *Moraxella anatipestifer*.

EVELETH, D. F., GOLDSBY, A. I., BOLIN, F. M., HOLM, G. C. & TURN, J. (1954). **Field trials and laboratory tests with *Listeria bacterins*.**—*Proc. 90th Ann. Meet. Amer. vet. med. Ass.* Toronto, July 20-23, 1953. pp. 154-155. **588**

The susceptibility of g. pigs and rabbits to infection with virulent *Erysipelothrix* (*Listeria*) *monocytogenes* was increased during the first week after they had been inoculated with bacterins composed of killed *E. monocytogenes* or its products. After this period, immunity developed and reached a maximum 14 days after infection. Repeated injections at weekly intervals enhanced the degree of immunity. A decrease in the incidence of *E. monocytogenes* infection was observed in 20

flocks containing over 5,000 sheep, which had been inoculated from one to six times with the bacterin.—R.M.

SILVERMAN, S. J. (1954). **The isolation of fractions from *Pasteurella pestis* for use in a hemagglutination test.**—*J. Lab. clin. Med.* 44, 185-193. [Author's summary modified.] 589

Fractions obtained from saline extracts of acetone-killed cells of *Past. pestis* by $(\text{NH}_4)_2\text{SO}_4$ or by acid precipitation were adsorbed by sheep erythrocytes, causing them to agglutinate in the presence of the specific serum. Haemagglutination was more sensitive and more specific than bacterial agglutination for the detection of specific antibodies and may be used for an approximation of the degree of protection obtained in tests of the efficacy of immunizing agents.

I. ISSALY, A. S. & MIRAVET DE ISSALY, I. S. (1950/53). **Actividad ureásica de las Pasteurellas.** [**Urease activity of *Pasteurella* spp.**]—*Rev. Inst. Malbrán, B. Aires.* 15, 337-346. 590

II. ISSALY, A. S. & MIRAVET DE ISSALY, I. S. (1950/53). **Contribución al estudio de la clasificación de las Pasteurellas.** (Segunda comunicación.) [**Classification of *Pasteurella* spp.**]—*Ibid.* 169-173. 591

I. Investigations designed to help in the classification of *Pasteurella* species gave the following results:—28 out of 31 strains of mammalian origin were urease negative, as also were 5 strains of *Past. pestis*. Four out of 5 strains from birds, and 8 out of 9 strains of *Past. pseudotuberculosis* were urease positive.

II. In further work, immune sera prepared from 3 avian strains failed to agglutinate pigeon r.b.c., whereas immune sera prepared from 14 mammalian strains agglutinated pigeon r.b.c. at titres of up to 1:10,000.

—I. W. JENNINGS.

McDIARMID, A. (1954). **The occurrence of disease in wild birds associated with *Bact. paracoli*.**—*Vet. Rec.* 66, 460-462. [Author's summary modified.] 592

Infection with members of the paracolon group of organisms was detected in a wood pigeon and in a partridge. The author suggested that some of the temporary indefinite reactions to the agglutination test for *Salmonella pullorum* infection met with in accredited flocks of domestic poultry may be associated with these organisms. He suggested that wild birds may constitute a source of infection with these organisms for human beings.

DĄBROWSKI, T. & WOŁOSZYN, S. (1954). **Shigelloza źrebiąt w Państwowych stadninach koni.** [**Shigella infection in foals in Polish stud farms.**]—*Méd. vét., Varsovie.* 10, 197-199. [In Polish.] 593

A note on *Bact. viscosum equi* infection in 5 new-born foals on a stud farm, with a brief discussion on general control measures in conventional terms.—J. R. MITCHELL.

COTTEW, G. S. & FRANCIS, J. (1954). **The isolation of *Shigella equuli* and *Salmonella newport* from normal horses.**—*Aust. vet. J.* 30, 301-304. 594

Thirty strains of *Bact. viscosum equi* were isolated from 59 horses on 6 farms. Twenty-nine strains were recovered from the mouth and a single strain from the cervix. Eighteen strains were from 35 adult horses and 12 strains from 24 foals.

Faecal swabs of 20 foals on one farm yielded *S. newport* from 3 which were apparently healthy and 2 strains from foals with diarrhoea.—K. G. JOHNSTON.

PEARSON, J. K. L. (1954). **Oral terramycin in the treatment and prevention of white scour in calves.**—*Vet. Rec.* 66, 529. 595

Forty out of 41 young calves rapidly recovered from white scours when given two daily doses each of 0.5 g. terramycin hydrochloride by mouth. Even at this relatively high dosage, coliform organisms were not eliminated, in spite of clinical improvement of the animal. Calves on infected farms which were given the same dosage of the drug between 36 and 48 hours after birth, did not develop white scours.—R.M.

GEURDEN, L. M. G. (1954). **Salmonellose bij kalveren.** [**Salmonellosis in calves.**]—*Vlaam. diergeneesk. Tijdschr.* 23, 188-192. 596

A general discussion on the literature. G. discussed the possibility that treatment with such a drug as chloramphenicol might cause the death and disruption simultaneously of large numbers of the bacteria and release toxins on such a scale that the health of the patient was seriously endangered.—C. A. VAN DORSSEN.

MURA, D. & CONTINI, A. (1954). **Sorgenti e vie di trasmissione dell'infezione aborto ovino e caprino da *Salmonella* (importanza del maschio riproduttore).** [**The importance of the male in the transmission of salmonella abortion in sheep and goats.**]—*Vet. ital.* 5, 787-802. [English, French and German summaries.] 597

From the evidence of experiments on limited numbers of sheep and goats, the authors concluded that *S. abortus-ovis* infection was transmitted to the female mainly by coitus. They were unable to demonstrate the presence of the organism in the semen or in the male genital organs.—I. W. JENNINGS.

JOSLAND, S. W. (1954). **The infective and immunogenic properties of *Salmonella cholerae suis* in weaner pigs.**—*N. Z. vet. J.* **2**, 41-46. [Author's conclusions modified.] 598

J. infected recently weaned piglets by feeding to them broth cultures of smooth colonies of *S. cholerae-suis* that had recently been isolated from pigs, or by cultures that had been preserved *in vacuo* in the dried state. By feeding 12.5 ml. of a 24-hour broth culture containing approx. $10,000 \times 10^6$ living organisms it was possible to establish a fatal infection in a majority of the piglets. He found that the immunological response following vaccination was poor and inconsistent, and from the result of challenge trials concluded that prophylactic vaccination was of little value.

KAUFFMANN, F., BUTTIAUX, R. & GAUMONT, R. (1954). **A new salmonella type (*S. lille*) from chickens.**—*Acta path. microbiol. scand.* **34**, 99-100. [In English.] [Authors' summary slightly modified.] 599

A note on a new salmonella type, *S. lille* = VI, VII:z_{ss}, isolated from chickens with enteritis.

SEELEMANN, M. (1953). **Vorschläge für die Neuregelung der Abortus-Bang-Bekämpfung auf Grund langjähriger wissenschaftlicher und praktischer Erfahrungen.** [Suggested modifications in control methods for *Br. abortus* infection in cattle.]—*Mh. Tierheilk.* **5**, 247-262. 600

S. advocated the use of Strain 19 vaccine on young calves.—E. A. HIRSCH.

MORSE, E. V., ROBERTSTAD, G. W., BEACH, B. A. & RISTIC, M. (1954). **A bacteriological study of ten persistent reactor cows following vaccination with *Brucella abortus*, Strain 19.**—*J. Amer. vet. med. Ass.* **125**, 212-214. 601

Ten cows, vaccinated as calves with Strain 19 of *Br. abortus*, were persistent reactors to the serum-agglutination test for brucellosis. At P.M. examination *Br. abortus* was not found in any of these cows. The sera of 3 of them contained the non-specific brucella-agglutinating factor described by Hess & Roepke [*V.B.* **22**, 943]. The authors discussed the occurrence

of non-specific persistent reactors to the brucella agglutination test.—R.M.

OLITZKI, A. L. & SULITZEANU, D. (1954). **The use of streptomycin-resistant and non-resistant strains for the determination of the immunizing effect of living *Brucella abortus* vaccines in white mice.**—*J. infect. Dis.* **94**, 213-224. [Authors' summary slightly modified.] 602

In experimental *Br. abortus* infection in white mice the optimal immunizing effect was obtained by using a quantity of living organisms sufficient to survive at the time of re-infection and capable of inhibiting completely the invasion of the re-infecting organisms into the spleen. When, however, the primary infecting strain had disappeared from the infected organs at the time of re-infection there resulted a state of relative immunity in which the number of re-infecting micro-organisms in the spleen remained limited and finally disappeared.

ALTENBERN, R. A. & HOUSEWRIGHT, R. D. (1952). **Carbohydrate oxidation and citric acid synthesis by smooth *Brucella abortus*, Strain 19.**—*Arch. Biochem.* **36**, 345-356. 603

The reaction of suspending medium markedly influenced the oxidation of various intermediates of the citric acid cycle by intact cells of Strain 19 of *Br. abortus*. The effect was probably produced by alteration in the permeability of the cell. The authors suggested the existence of the tricarboxylic acid cycle in *Br. abortus*.—A. B. PATERSON.

GARGANI, G. & DONNINI, M. V. (1954). **Revisione della classificazione degli stipiti del genere *Brucella* della collezione de Centro Italiano della Brucellosi.** [The classification of strains of *Brucella* at the Italian Centre for Brucellosis.]—*Boll. Ist. sieroter. Milano.* **33**, 274-281. 604

An account of the typing of 178 strains of brucella. The authors employed the conventional methods—effect of fuchsine, methyl violet, threonine, and production of H₂S—and also the sodium diethyldithiocarbamate test described by Renoux.—I. MARTINI.

CRUICKSHANK, J. C. (1954). **Observations on *Brucella* species based on the examination of 800 strains.**—*J. Hyg., Camb.* **52**, 105-118. 605

Of 738 strains of brucella isolated from milk in Britain and examined in the Brucella Reference Laboratory of the Public Health Laboratory Service, 680 were *Br. abortus*: of these 62 were of a type inhibited by the usual

test-dyes. *Br. melitensis* (30 strains) was identified from 24 farms and one supply of bulk raw milk from tuberculin-tested cows.

—W. R. BETT.

WRIGHT, F. J., COOKE, E. R. N. & D'SOUZA, J. ST. A. M. (1953). **Observations on brucellosis in Kenya.**—*Trans. R. Soc. trop. Med. Hyg.* **47**, 117-129. **606**

The authors stated that brucellosis in human beings in Kenya was first recorded in 1916. During the 7 years 1945-51, whilst 1,120 cases were diagnosed on serological evidence, undoubtedly several times as many cases remained unrecorded. The incidence appears to be increasing. Brucellosis in Africans is usually due to infection with *Br. melitensis* while in Europeans it is almost invariably due to *Br. abortus*. These general observations are supported by the authors' own findings based on the study of 70 consecutive cases. Of these infections, 64 (60 in Africans and 4 in Asians) were due to *Br. melitensis*, and 6 (4 in Africans and 2 in Europeans) to *Br. abortus*.

The disease tends to be sporadic. Veterinary surgeons and bacteriologists are said to be especially liable to become infected, and a number of cases of *Br. melitensis* infection were found in African workers at an abattoir. Africans may be infected as children or young adults, but the incidence in middle-aged and elderly men was surprisingly high, 8 out of 53 males with *Br. melitensis* infection being over 45 years old.

In other countries, infected goats' milk has been shown to be an important source of brucellosis in man. The authors state that *Br. melitensis* has been recovered from a sheep in Uganda but has not yet been demonstrated in sheep or goats in Kenya. Few of their adult African patients admitted having drunk goats' milk, but in many cases other forms of contact had occurred, e.g. sleeping in the same hut as a goat: eating undercooked goats' meat; etc. The authors considered such contacts to be important sources of infection, and suggested that dust-borne infection may have occurred in those cases in which all direct contact with goats or sheep could be excluded. Where brucellosis had been contracted from cattle the organism concerned was always *Br. abortus*.

In 4 cases the authors found that fresh samples of the patients' serum were negative to the agglutination test, but that agglutinins were demonstrable if the serum had been kept for 3 days or warmed at 45°C. for 30 min. They stated that most strains of *Br. abortus*

isolated in Kenya are aerobic and are not inhibited by thionin. In one case, growth was not apparent for 38 days.

Details were given of the effect of treatment with various antibiotics and sulphonamides. The best results were obtained with aureomycin in conjunction with dihydrostreptomycin and sulphadimidine, but the authors suggested that early cases should be treated with aureomycin only, and the mixed treatment reserved for chronic or relapsed cases. In conclusion they stressed the widespread incidence of brucellosis in Kenya and the need for further study of its epidemiology.—E. A. GIBSON.

MARCENAC. (1954). Leptospiroses et ophtalmies du cheval. Constations cliniques dans un haras de pur-sang. [**Leptospirosis and recurrent ophthalmia in a Thoroughbred stud.**]—*Rev. Path. gén. comp.* **54**, 480-484. Discussion: pp. 484-487. [English summary.] **607**

A high proportion of Thoroughbred colts yielded positive agglutination reactions to leptospira antigen. M. inclined to the view that there is no relationship between equine periodic ophthalmia and leptospirosis.

—T. E. GATT RUTTER.

VAN RIEL, J. (1953). Recherches sur la leptospirose canine au Congo Belge. [**Canine leptospirosis in the Belgian Congo.**]—*Ann. Soc. belge Méd. trop.* **33**, 747-757. **608**

The serum of 7 out of 50 apparently healthy dogs in Kamituga, Belgian Congo, contained leptospira agglutinins. Three of them were positive to *L. hebdomadis*, 2 to *L. icterohaemorrhagiae*, one to *L. grippo-typhosa* and one to *L. bataviae*.—R.M.

GRINER, L. A. & JOHNSON, H. W. (1954). ***Clostridium perfringens* type C in hemorrhagic enterotoxaemia of lambs.**—*J. Amer. vet. med. Ass.* **125**, 125-127. **609**

An account of enterotoxaemia associated with *Cl. welchii* type C in lambs aged 12-72 hours, born in a flock of some 15,000 ewes. Daily morbidity was 12-20%, and the disease was invariably fatal. The later born lambs (400) were given *Cl. welchii* type C antiserum and the deaths stopped.—R.M.

MACLENNAN, J. D. (1953). **The toxicity of clostridial enzymes.**—*Trans. N.Y. Acad. Sci.* **16**, 14-19. **610**

A discussion on the toxicity of enzymes produced by clostridia in general, with special reference to lecithinase and collagenase, and with references to the literature.—R.M.

RASBECH, N. O. (1954). La vibriose bovine au Danemark. [*Vibrio fetus* infection in Denmark.] — *Bull. Off. int. Epiz.* **42**, May, pp. 608-620. [English summary.] **611**

Enzootic infertility due to *V. fetus* increased in Denmark until 1950, when an attempt was started to control all bulls used for artificial insemination. Diagnosis was made by culture from uterine biopsy specimens from previously negative heifers inoculated with suspected semen or preputial washings. Treatment of infected animals, but not of infected semen, with dihydrostreptomycin, gave satisfactory results.—A. SEAMAN.

KAWASHIMA, H., IWATA, A. & SUSUKI, Y. (1954). L'avortement à vibriion du bétail et la stérilité enzootique. [*Vibrio fetus* infection in Japan.] — *Bull. Off. int. Epiz.* **42**, May, pp. 621-640. [English summary.] **612**

About 25% of aborted fetuses in the Hyogo and Kyoto districts of Japan gave positive cultures of *V. fetus*. Infertile herds also gave a large number of positive cultures.

—A. SEAMAN.

TERPSTRA, J. I. (1954). Vibriose bovine. [*Vibrio fetus* infection in the Netherlands.] — *Bull. Off. int. Epiz.* **42**, May, pp. 641-648. [English summary.] **613**

A brief account of symptoms and diagnosis of *V. fetus* infection in the Netherlands. T. mentioned the current lines of Dutch research, namely the use of antibiotics in the treatment of the bull and the semen, cultural methods of diagnosis, and strain differences in antigenicity.—A. SEAMAN.

BOYD, H. & LAGERLÖF, N. (1954). Vibriose bovine en Suède. [*Vibrio fetus* infection in Sweden.] — *Bull. Off. int. Epiz.* **42**, May, pp. 649-670. [English summary.] **614**

Ninety herds were examined at intervals for *V. fetus* infection by serological examination of mucus obtained by vaginal swabs. The authors gave figures typical of non-infected, lightly, and heavily, infected herds. Their main conclusion was that the serological test must be used in conjunction with the clinical history of the herd.—A. SEAMAN.

FLORENT, A. (1953). Isolement d'un vibriion saprophyte du sperme du taureau et du vagin de la vache (*Vibrio bubulus*). [Isolation of a saprophytic vibrio (*Vibrio bubulus*) from the semen of bulls and the vagina of cows.] — *C. R. Soc. biol., Paris.* **147**, 2066-2069. **615**

A description of the isolation and pathogenicity of *V. bubulus*, encountered during

routine examinations for *V. fetus*. It was non-pathogenic and there was no cross-agglutination with *V. fetus*, from which it was distinguished by the production of hydrogen sulphide.

—A. SEAMAN.

PANICHI, G. (1954). Necrobacillosi puerperale nella vacca. [*Fusiformis necrophorus* infection of the vagina in cows.] — *Veterinaria, Milano.* **3**, No. 3, pp. 3-9. [English summary.] **616**

During a period of about 5 months, P. diagnosed *F. necrophorus* infection of the genital system of 15 cows after parturition. He described the course of the disease, which sometimes resulted in peritonitis.—I. W. JENNINGS.

CHRISTIE, R. & MORTON, M. M. (1953). The detection of *Candida albicans*. — *Aust. J. Derm.* **2**, 87-93. **617**

The authors presented the results of an investigation, prompted by difficulties encountered in the identification of *C. albicans*.

Seventy-eight strains of yeast-like organisms were examined for fermentation reactions, formation of hyphae and chlamydospores in maize meal extract, animal pathogenicity (tested in g. pigs and mice), slide agglutination with an absorbed antiserum, and colony appearance on eosin-methylene blue agar.

No single test was completely accurate, but the slide agglutination test gave the smallest number of errors where a rapid decision was necessary.—K. G. JOHNSTON.

ROOK, A. J. & FRAIN-BELL, W. (1954). Cattle ringworm. — *Brit. med. J.* Nov. 20th, 1198-1200. [Authors' summary modified.] **618**

The authors discussed the incidence of cattle ringworm and its transmission to man in Great Britain. Most infections in this country are caused by *Trichophyton discoides*, but *T. mentagrophytes* is responsible for some cases. They described infection in 39 human beings, and its treatment. The acutely inflammatory infections were self-limiting, and the patients' discomfort was increased by irritating fungicides, which did not shorten the course of the disease, and sometimes produced a contact dermatitis. Active treatment should be reserved for the less-acute cases.

MUNCH - PETERSEN, E. (1954). *Actinomyces* (*Nocardia*) sp. from a bovine udder infection. — *Aust. vet. J.* **30**, 297-300. **619**

The author described a strain of *Actinomyces* (*Nocardia*) *asteroides* recovered from mastitis in a cow. When injected into the teat canal of normal quarters the organism produced

thick-walled nodular abscesses, 1-10 mm. in diam. containing green-yellow viscous pus of earthy odour.—K. G. JOHNSTON.

CILLI, V., BATTELLI, C. & CECCARELLI, A. (1954). *Ricerche sperimentali su di uno stipite di Asteroides* (Proactinomyces, Nocardia) *asteroides* repertato in un caso di actinomicosi spontanea del cane. [Experiments on a strain of *Actinomyces asteroides* recovered from spontaneous actinomycosis in a dog.]—*Boll. Ist. sieroter., Milano*. **33**, 139-173. [English and French summaries.] 620

A description of *Actinomyces asteroides* isolated from the lungs of a dog with severe bilateral pneumonia. P.M. examination revealed the presence of multiple nodules containing the organism in the lung, liver, heart, pancreas, spleen, and kidney. The authors discussed the nomenclature of the organism.

—I. MARTINI.

GALLI, G. (1954). Osservazioni e studi su casi di mastite micotica bovina. [Bovine mycotic mastitis.]—*Vet. ital.* **5**, 587-604. [English, French and German summaries.] 621

G. described 2 outbreaks of mycotic mastitis in cattle, both following the intramammary injection of penicillin for the treatment of streptococcal mastitis. One outbreak, benign in type, was due to *Candida pelliculosa* infection and all the 9 infected cattle recovered after treatment. A more serious outbreak, in which 26 cattle were infected so badly that they had to be slaughtered, was the result of *Debaryomyces neoformans* infection. G. suggested that contaminated distilled water used in the penicillin treatment was the source of infection.

—I. W. JENNINGS.

SMITH, D. T. (1953). The diagnosis and therapy of mycotic infections.—*Bull. N.Y. Acad. Med.* **29**, 778-795. 622

See also absts. 628-629 (V. fetus); 692 (bacteriophage and heredity in *S. typhi-murium*); 747 (diseases of laboratory rodents); 753 (isolation of *Past. septica* from pigs with atrophic rhinitis); 754 (bacteriology of atrophic rhinitis); 799 (control of milk-borne diseases); 830 (introduction of minute amounts of bacterial culture into the teat canal); 831 (single cell isolation and cultivation of aerobic, lipophilic and microaerophilic bacteria); 839 (report, Northern Ireland); 840-841 (reports, Australia); 842-843 (reports, Sudan); 844 (report, Cyprus); 845 (report, Mauritius); 846 (report, Trinidad & Tobago); 848 (report, Nyasaland); 849 (report, Republic of Ireland); 851 (book, introduction to microorganisms); 852 (book, leptospiroses).

DISEASES CAUSED BY PROTOZOAN PARASITES

WOOD, S. F. (1954). Environmental temperature as a factor in development of *Trypanosoma cruzi* in *Triatoma protracta*.—*Exp. Parasit.* **3**, 227-233. 625

Temperatures of 22° to 23°C. decreased the numbers of trypanosomes in the faeces of the bugs. They did not appear for 12 days or more after an infected meal. At 28° to 34.5°C.

A review of the geographical incidence, diagnosis, and treatment of fungous infections of human beings, with reference to the incidence of *Histoplasma* infection in animals, and the growth on culture media and the chemotherapy of *Actinomyces bovis*.—R.M.

MAHONEY, D. F. (1954). Epidemiological considerations in relation to the control of contagious bovine pleuropneumonia in North West Queensland.—*Aust. vet. J.* **30**, 318-320. Discussion: pp. 320-323. 623

The low carrying capacity of the pastures and a dry climate help to keep in check the spread of bovine contagious pleuro-pneumonia which is endemic in North Queensland. Destruction of clinical cases and intermittent herd vaccination are not efficient control measures because the disease is perpetuated by a high incidence of subclinical infection. Regular vaccination, conveniently done at weaning time, gives better control, although it has the disadvantage that it does not prevent a calfhood infection. M. pointed out that better husbandry is necessary for more effective control. In discussion on the paper, A. L. Rose gave an account of some of the husbandry problems encountered in Australia's northern cattle country.

—K. G. JOHNSTON.

LECCE, J. G. & SPERLING, F. G. (1954). Chronic respiratory disease. I. The isolation of pleuropneumonia-like organisms as a diagnostic aid.—*Cornell Vet.* **44**, 441-449. 624

The authors described a selective medium suitable for the growth of pleuropneumonia-like organisms. In fowls with "chronic respiratory disease", these organisms were present more often in the trachea than in the lungs or air sacs. They stated that the isolation of pleuropneumonia-like organisms from fowls with respiratory symptoms confirmed a diagnosis of "chronic respiratory disease".—R.M.

more parasites appeared during the same time intervals and they appeared after 7 days.

—R. G. MARES.

WATKINS, W. M. & MORGAN, W. T. J. (1954). Inactivation of the H receptors on human erythrocytes by an enzyme from *Trichomonas foetus*.—*Brit. J. exp. Path.* **35**, 181-190. 626

A partially purified enzyme prepared from *Tr. foetus*, in addition to inactivating the H-specific structures, caused group M and N cells to lose their capacity to react with their homologous antibodies. The receptors for the PR8 strain of influenza virus were destroyed.

—JAS. G. O'SULLIVAN.

WILLIAMS, H. E. (1954). The status of bovine trichomoniasis in the Colony of Trinidad and Tobago. — *Trop. Agriculture, Trin.* 31, 318-320. [Author's summary modified.] 627

W. gave the results of a bovine trichomoniasis survey amongst bulls in the Colony of Trinidad and Tobago. Fifteen out of 18 communal bulls in Trinidad were infected, but the organism was absent in eight bulls in Tobago.

FLORENT, A. (1954). Agglutination paradoxale de *Vibrio foetus* par le mucus vaginal de la bête bovine agglutinant *Trichomonas foetus*. [Agglutination of *V. fetus* by vaginal mucus from cows which also agglutinates *Tr. foetus*.] — *C. R. Soc. Biol., Paris.* 148, 615-618. 628

Routine examination of the vaginal mucus samples from cows revealed a considerable correlation between *V. fetus* and *Tr. foetus* agglutination. Experiments on samples from 2 heifers deliberately infected with *Tr. foetus* showed that the vaginal mucus contained antibodies agglutinating *V. fetus*, even after the antibodies agglutinating *Tr. foetus* had been removed.—A. SEAMAN.

LEIDL, W. & MAHRLA, A. (1954). Das Verhalten von *Trichomonas foetus* und *Vibrio foetus* bei der Tiefkühlung. [Survival of *Tr. foetus* and *V. fetus* at -79°C .] — *Fortpflanzung. ZuchtHyg. Haustier Besamung.* 4, 101-102. 629

It was shown that *Tr. foetus* could remain alive after deep freezing at -79°C . whether glycerol was present or not. *V. fetus* and other bacteria likewise remained alive.

—E. J. L. SOULSBY.

O'DONNELL, F. A. (1954). Intestinal trichomoniasis in a dog. — *Vet. Med.* 49, 389-391. 630

A clinical note. A six month Alsatian bitch with many intestinal trichomonads showed persistent diarrhoea. "Metamucil" [a demulcent prepared from the seed of psyllium, *Plantago ovata*, with 50% glucose] given mixed with the food twice daily temporarily relieved the condition and 8-hydroxy-5: 7-diiodoquinoline per os at the rate of 650 mg. three times daily apparently effected a cure.—D. POYNTER.

LYNCH, J. E., ENGLISH, A. R., MORRISON, J. & MAVEN, I. (1954). Protective action of anisomycin in mice infected with *Trichomonas foetus*.—*Antibiot. & Chemother.* 4, 899-904. [Spanish summary: p. 921.] 631

Mice inoculated subcutaneously with 0.5 ml. of a culture of *Tr. foetus* developed an abscess at the point of injection. The s/c infection for 2-5 days of 25-50 mg./kg. anisomycin, immediately or 24 hours after inoculation with *Tr. foetus*, and into the site of inoculation of the organisms, inhibited the multiplication of *Tr. foetus* and prevented the development of an abscess.—R.M.

WILKINS, J. R. & HENSHAW, C. T. (1954). The effect of endomycin and other antibiotics on *Trichomonas vaginalis* in vitro.—*Exp. Parasit.* 3, 417-424. 632

The action of endomycin at as low a conc. as 50 $\mu\text{g.}/\text{ml.}$ on *Tr. vaginalis* in vitro was superior to that of penicillin, chloramphenicol, terramycin, neomycin, circulin, fumagillin, chlortetracycline, bacitracin and streptomycin: Endomycin acted by lysis of the organisms.

—R.M.

OLSON, N. O. & CLARK, T. B. (1954). Concurrent coccidiosis and Newcastle disease and the use of sulphaquinoxaline to control coccidiosis.—*Proc. 26th Ann. Meet. N.E. Conf. Lab. Wkrs Pullorum Dis. Contr.*, Raleigh, N.C., June 14-15, 1954. pp. 4. [Mimeographed.] 633

The authors reported that the feeding of 0.0125% of sulphaquinoxaline mixed with the mash failed to control experimental infestations of *E. tenella*. The concurrent use of a commercial Newcastle disease vaccine did not increase the mortality rate and the birds showed a normal development of immunity to both diseases.—E. A. GIBSON.

SINGER, I. (1954). The cellular reactions to infections with *Plasmodium berghei* in the white mouse.—*J. infect. Dis.* 94, 241-261. [Author's summary modified.] 634

S. described the cellular reactions and histopathology in mice infected with *Pl. berghei*. These reactions differed from most other malarial infections in the following ways:—The spleen became almost wholly erythropoietic, was depleted of lymphatic tissue, and lost most of its phagocytic function. With the decrease of white pulp in the spleen, there was a concomitant hyperplasia of lymphatic tissue in the lymph nodes. At the time of, or shortly after, the minor crisis, an increased conc. of parasitized erythrocytes was found in the venous sinuses of the spleen and in the sinuses and

venules of the liver and bone marrow, which was highly suggestive of agglutination of these forms by mechanisms of acquired immunity. The liver, and not the spleen, was the most actively phagocytic organ.

SINGER, I. (1954). **The effect of cortisone on infections with *Plasmodium berghei* in the white mouse.**—*J. infect. Dis.* **94**, 164-172. **635**

When cortisone was given to mice infected with *Pl. berghei* it caused a lowered parasitaemia and a reduced reticulocytosis. The lowered parasitaemia was explained by the partial inhibition of hyperplasia of the erythroid tissue which in turn deprived the parasite of suitable cells for penetration.

—JAS. G. O'SULLIVAN.

SENEVIRATNE, P. (1953). **Piroplasmosis of dogs in Ceylon. Preliminary note on the chemotherapeutic treatment of *B. gibsoni* infections with paludrine hydrochloride.**—*Ceylon vet. J.* **1**, 95-98. [Author's summary modified.] **636**

Piroplasmosis of dogs in Ceylon is caused by: *B. gibsoni* and *B. canis*. Infection with *B. gibsoni* is the most common. S. discussed the symptoms caused by this parasite. Proguanil hydrochloride (paludrine hydrochloride) was given by mouth at the dosage rate of 0.05-0.2 g. according to body wt. daily for 10 days in the treatment of *B. gibsoni* infection. Of 21 dogs treated, 17 completely recovered. In three dogs there was no appreci-

able improvement and one died, probably as a result of *Spirocerca lupi* infestation. Three of the 17 dogs that recovered had been previously treated with tryparsamide without success.

AWAD, F. I. (1954). **The diagnosis of toxoplasmosis: lack of specificity of Sabin-Feldman dye test.**—*Lancet*. **267**, 1055-1056. [Author's summary modified.] **637**

Sera of mice and rabbits inoculated with *Trichomonas vaginalis*, and of mice recovered from infection with *Trypanosoma cruzi*, gave cross-reactions in the Sabin-Feldman dye test for *Toxoplasma*. This clearly demonstrated the lack of specificity of the test in the diagnosis of toxoplasmosis.

SCHMIDTKE, L. (1954). **Bemerkungen zur Verfütterung von *Toxoplasma* an Versuchstiere. [Observations on the feeding of *Toxoplasma* to laboratory animals.]**—*Z. Tropenmed. u. Parasit.* **5**, 182-183. [English summary.] **638**

Toxoplasmosis could not be produced in experimental animals when infective material was fed to them in the natural way, but infections could be induced when the material was forced into the mouth with a pipette. S. concluded that the infections in the latter experiments arose from contamination of the nasal tract. Erroneous conclusions could therefore be drawn from experiments of this type.

—L. P. JOYNER.

See also absts. 747 (diseases of laboratory rodents); 840 (report, Australia); 842 (report, Sudan); 848 (report, Nyasaland).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

MOOSBRUGGER, G.-A. (1954). **La transmission de la fièvre aphteuse par les fourrages et les produits végétaux. [Spread of foot and mouth disease by fodders and plants.]**—*Bull. Off. int. Epiz.* **42**, May, pp. 236-247. [English summary.] **639**

M. discussed previous work on the survival of virus in feeding stuffs, including Swiss research on the presence of virus in commercial feeding stuffs. A systematic study of primary outbreaks during the period 1947-53 showed that 11 outbreaks could be attributed to purchased fodder. Virus was recovered from this source in 4 cases.—G. V. LAUGIER.

TRAUB, E. (1954). **Produits végétaux vecteurs du virus aphteux. [Plant products and the spread of foot and mouth disease.]**—*Bull. Off. int. Epiz.* **42**, May, pp. 248-255. [English summary.] **640**

T. discussed the literature with particular reference to:—survival of the virus in vegetable

products, period of viability in contaminated foodstuffs and the demonstration of virus in imported plant products.—G. V. LAUGIER.

RANDRUP, A. (1954). **Electrophoresis of the virus of foot-and-mouth disease. I. Mobility experiments suggesting a close relation between virus and host microsomes. II. Mobility of the lesser complement fixing particle. III. Mobility studies on the greater complement fixing particle and its splitting by pH=6.5.**—*Acta path. microbiol. scand.* **35**, 287-302; 303-306 & 381-387. [In English.] [Author's summary modified.] **641**

I. R. examined infectious lymph from F. & M. disease vesicles on the tongue of cattle by electrophoresis, employing a special technique for sampling from the electrophoresis cell. In some of the experiments a purified microsome preparation produced from bovine tongue epithelium (host tissue for the virus) was added to the lymph. The experiments showed that

there exists a close conformity between the electrophoretic mobilities of the F. & M. disease virus particle, the greater complement-fixing particle present in infectious F. & M. material, and the microsomes from the host tissue for the virus.

II. The electrophoretic mobility of the lesser, non-infective c.f. particle in F. & M. material was determined. Comparison with the results in the previous and the subsequent communications showed that the lesser c.f. particle probably possesses less electrophoretic mobility than the infective particle.

III. R. described the electrophoretic mobility of the greater complement-fixing particle present in the virus of F. & M. disease. The mobility of the small c.f. particle formed by splitting of the greater c.f. particle was also determined, and by comparison R. demonstrated that this small c.f. particle moved more slowly than the greater c.f. particle and the microsomes of the host tissue. On the other hand the small particles obtained by separation and the lesser naturally occurring c.f. particles appeared to move at the same speed. He also described his experience of sampling from the electrophoresis cell during the experiments with F. & M. disease virus.

I & II. RANDRUP, A. (1954). Ultracentrifugation of the virus of foot-and-mouth disease.

III. Verification of the existence of two particles of different size carrying the complement-fixing antigen. IV. Splitting of the greater complement-fixing particle. — *Acta path. microbiol. scand.* **34**, 355-365 & 366-374. [In English. Author's summaries modified.] **642**

I. R. verified the presence in untreated F. & M. disease virus material of a small complement-fixing particle which sedimented more slowly than the infective agent. Some of the c.f. antigen sedimented more rapidly than this particle. He assumed that this rapidly sedimenting c.f. antigen was present in conjunction with the c.f. particle previously found which had the same sedimentation constant as the infective agent. He also discussed various experiments for the purpose of determining the sedimentation constants for the infective agent and the two c.f. particles.

II. R. demonstrated that under certain circumstances the greater c.f. particle could be split. This resulted in the formation of another c.f. particle which was apparently of the same size as the small c.f. particle of normal occurrence in vesicular lymph.

RANDRUP, A. (1954). On the stability of bovine foot-and-mouth disease virus dependent on pH. Investigations on the complement fixing and the immunizing antigen as well as on the infective agent. — *Acta path. microbiol. scand.* **35**, 388-395. [In English.] [Author's summary modified.] **643**

R. investigated the stability of F. & M. disease virus from cattle at the pH range of 5.5 to 8.5, and obtained similar results with virus material from both cattle and g. pigs. He also investigated the effect of $\text{Al}(\text{OH})_3$ on the stability of the virus

After inactivation of the virus at pH 6.2 to 6.5 the complement-fixing antigen was still active, whereas the immunizing antigen was inactive. On the other hand, after inactivation of the infective agent at pH 9.0 to 9.1 both the complement-fixing and the immunizing antigen were active.

BAREI, S. (1954). La cloromicetina nella cultura in vitro su tessuti del virus aftoso. [Use of chloramphenicol additions to foot and mouth disease virus cultures in tongue epithelium.] — *Clin. vet., Milano*. **77**, 33-38. [English summary.] **644**

The optimum concentration of chloramphenicol for the production of bacteria-free cultures of F. & M. disease virus on tongue epithelium *in vitro* was found to be 0.5 mg. per ml.—I. W. JENNINGS.

GILLESPIE, J. H. (1954). The propagation and effects of type A foot-and-mouth virus in the day-old chick. — *Cornell Vet.* **44**, 425-433. [Author's summary modified.] **645**

F. & M. disease virus type A, obtained from tissue-cultures, was maintained for 20 serial passages in day-old chicks by the i/v inoculation of infected gizzard muscle. No deaths occurred, but starting with the 11th passage macroscopic lesions were regularly produced in the gizzard muscle. Gross gizzard lesions were produced in 6-week-old birds by i/v inoculation, and in day-old chicks by routes other than i/v inoculation, when virus representing the 12th and 13th chick passages was employed.

BASSET, J. (1954). Fièvre aphteuse—vaccins et vaccination. Les vaccins utilisés en France. [Foot and mouth disease vaccines used in France.] — *Rev. Méd. vét.* **105**, 1-14. **646**

B. reviewed the work of two official commissions enquiring into the value of the Belin F. & M. disease vaccine and expressed some criticism of the methods adopted and the conclusions reached. He discussed the opinions of

other workers. He dealt similarly with the I.F.F.A. (Institut Français de la Fièvre Aphteuse) vaccine. He expressed the view that F. & M. disease vaccine production (and that of other vaccines) should be a State monopoly.

—G. V. LAUGIER.

RICE, C. E. & BOULANGER, P. (1954). **The use of direct and indirect complement-fixation tests for the demonstration of antibodies for vesicular viruses in cattle.**—*Proc. 90th Ann. Meet. Amer. vet. med. Ass.* Toronto, July 20-23, 1953. pp. 169-174. [Authors' summary modified.] **647**

Complement-fixation tests of the direct type were used to identify the virus responsible for the 1952 outbreak of F. & M. disease in Canada as type A. The virus was differentiated from types O and C, and from the New Jersey and Indiana types of vesicular stomatitis virus, through the use of hyper-immune g. pig antisera received from Pirbright, England.

Sera from cattle on a farm where an outbreak of mild vesicular disease had occurred 3 months earlier failed to fix complement in direct tests with F. & M. disease virus type 3 and vesicular stomatitis antigens. Evidence of combining activity with the former, *i.e.*, with an antigen prepared with the Canadian type A strain, was however obtained in c.f. tests of the indirect form. No inhibition was observed in indirect c.f. tests with vesicular stomatitis antigens. Indirect c.f. tests were also used to demonstrate the development of antibody in the sera of cattle experimentally infected with the New Jersey type of vesicular stomatitis virus.

In testing sera of cattle convalescent from a vesicular disease of unknown nature, it is suggested that c.f. tests of both direct and indirect forms be carried out in parallel with F. & M. disease antigens of types A, O, and C, and with vesicular stomatitis antigens of the Indiana and New Jersey types, using hyper-immune g. pig antisera of the respective types, in the titration of residual antigen in the indirect test.

PLUMMER, P. J. G. (1954). **Rabies in Canada, with special reference to wildlife reservoirs.**—*Bull. World Hlth Org.* **10**, 767-774. [French summary.] [Author's synopsis slightly modified.] **648**

P. outlined the course of known outbreaks of rabies in Canada in the 20th century, and described the present extensive enzootic. Its spread throughout the North West Territories,

and in the Provinces of Alberta, British Columbia, Manitoba, Quebec, and Saskatchewan, is attributed to the vast potential reservoirs of infection offered by the density of fauna in these areas—in particular, of foxes and wolves. Control and eradication is being attempted—with some success—chiefly by reducing the wildlife population and restricting the movement of dogs.

ADAMSON, J. S. (1954). **Ecology of rabies in Southern Rhodesia.**—*Bull. World Hlth Org.* **10**, 753-759. [French summary.] [Author's synopsis modified.] **649**

The author described the spread of rabies in Southern Rhodesia since 1950 and analysed its probable causes; the outbreak is attributed chiefly to the vast domestic-dog population, but cases have been noted among many other species of animal. He discussed the difficulties encountered in enforcing general control measures; however, the advent of Flury-strain avianized vaccine has allowed of a successful inoculation campaign which, in spite of some failure in immunization, is satisfactorily controlling the disease in most of the areas involved.

ZUNKER, M. (1954). **L'importance des renards dans la propagation de la rage en Allemagne. [The role of foxes in the spread of rabies in Germany.]**—*Bull. Off. int. Epiz.* **42**, May, pp. 83-93. [English summary.] **650**

Z. described the spread of rabies from Eastern Europe into western Germany. Control was rendered difficult owing to the role played by foxes as vectors. The destruction of foxes in infected areas is actively carried out.—G. V. LAUGIER.

CARNEIRO, V. (1954). **Transmission of rabies by bats in Latin America.**—*Bull. World Hlth Org.* **10**, 775-780. [French summary.] [Abst. from author's synopsis.] **651**

C. discussed the literature dealing with the role of vampire bats in the spread of rabies among cattle in Latin America since 1911, when the association between Desmodontidae and rabies epizootics in Brazil was first suspected. He described efforts to control the disease by destruction of these bats and vaccination of cattle, and discussed the suitability of chick-embryo vaccine.

DÉOM, J., MORTELMANS, J., JACQUES, R. & DE KEYSER, J. (1954). **La rage bovine au Katanga de 1950 à 1953, avec un aperçu sur la prophylaxie générale de la rage. [Bovine rabies in Katanga (Belgian Congo).]**—*Bull. Off. int. Epiz.* **42**, May, pp. 710-725. [English summary.] **652**

The authors described 45 cases of bovine rabies seen between 1950 and 1953, with particular reference to the numbers of Negri bodies found. They discussed the factors influencing the transmission of rabies and gave details of the measures taken in Katanga. They described vaccination technique using phenolized vaccines.—G. V. LAUGIER.

BALLANTYNE, E. E. & O'DONOGHUE, J. G. (1954). **Rabies control in Alberta.**—*J. Amer. vet. med. Ass.* **125**, 316-326. [Authors' conclusions slightly modified.] **653**

The authors described the various methods used in controlling the 1952-54 rabies outbreak in the Province of Alberta, Canada. Since wolves, foxes and coyotes were the main spreaders of the infection, and considering that half of Alberta is forest, it is not possible to draw definite conclusions as to results. The infection is likely to be present in northern areas for some time, if not permanently. The apparent eradication from southern Alberta to north of Edmonton, a distance of over 400 miles, is encouraging. This was brought about by the drastic reduction in the population of predatory animals plus the effective quarantine and vaccination of dogs and the destruction of strays. One significant achievement has been the absence of human cases of rabies. In the opinion of medical public health officials, this is due mainly to the thorough educational programme undertaken in Alberta, plus the other control measures outlined.

There are many unknown factors regarding rabies in wildlife, as well as a lack of factual knowledge concerning normal migration or non-migration of wild animals. Until these facts are known, rabies control in wildlife will be empirical. In agricultural areas, there is no reason why rabies cannot be satisfactorily controlled with an over-all concentrated programme.

WELLS, C. W. (1954). **The control of rabies in Malaya through compulsory mass vaccination of dogs.**—*Bull. World Hlth Org.* **10**, 731-742. [French summary.] [Author's synopsis modified.] **654**

A fulminating extension of rabies—which has been enzootic in northern Malaya since 1924—occurred in Kuala Lumpur in April 1952. The outbreak was suppressed by the compulsory mass vaccination of dogs, stringent legislation, and intensive stray-dog destruction. Similar measures are being employed in the current campaign, the aim of which is the complete eradication of the disease,

From an annual average incidence of 112 confirmed canine cases prior to 1952—when a total of 198 cases was reported—the incidence fell to 15 cases (all in unvaccinated dogs) for the period January-November 1953, during the last 5½ months of which no case in either animals or man was reported. It is considered that the extensive publicity campaign and strict enforcement of the control measures have contributed measurably to the present improved position.

W. cited statistics relating to confirmed cases in dogs previously vaccinated with (a) phenolized 20% brain tissue suspension vaccine (buffalo origin) and (b) chicken-embryo vaccine (Flury strain) and discussed their probable significance in favour of the latter under Malayan conditions. He suggested that the development of rabies may, in many instances, have been blocked by the vaccine.

He outlined the plan for a pan-Federation compulsory vaccination campaign in 1954, to consolidate the 1952-53 improvements.

OVEJERO, S. (1954). Progression et prophylaxie de la rage en Espagne. [**Control of rabies in Spain.**]—*Bull. Off. int. Epiz.* **42**, May, pp. 154-187. **655**

The incidence of rabies has diminished in Spain over the last 10 years. Legislation comprises the usual methods with compulsory vaccination of dogs in addition. Experimental vaccination of 50,000 dogs with avianized "Flury" strain virus has given encouraging results.—G. V. LAUGIER.

RUPPERT, F. (1954). Progression et prophylaxie de la rage. [**Control of rabies in Germany.**]—*Bull. Off. int. Epiz.* **42**, May, pp. 65-82. [English summary.] **656**

R. gave an account of the progress of disease and control measures employed in Germany since the second world war. Vigorous measures are taken against all potential vectors with particular emphasis on the extermination of foxes and badgers. Vaccination is advocated where rigorous police sanitary measures are not possible.—G. V. LAUGIER.

KAPLAN, M. (1954). Les progrès récents dans la lutte contre la rage chez les animaux. [**Recent advances in control of rabies.**]—*Bull. Off. int. Epiz.* **42**, May, pp. 188-205. [English summary.] **657**

A general account of recent advances in the control of rabies with detailed reference to diagnostic methods such as Seller's staining technique, the isolation of virus through mice; serum neutralization, the use of chick embryo

adapted vaccines, post-vaccination paralysis, and the use of hyperimmune serum.

—G. V. LAUGIER.

HABEL, K. (1954). **Antiserum in the prophylaxis of rabies.**—*Bull. World Hlth Org.* 10, 781-788. [French summary.] [Abst. from author's synopsis.] 658

H. discussed recent experimental evidence in support of inoculation with antirabies serum, and compared the value of such prophylactic treatment with that by vaccine treatment alone. He concluded that the main advantages of combined antiserum-vaccine prophylaxis lie in the rapid treatment of cases which have undergone severe exposure, and in the possibility of reducing the incidence of post-vaccinal complications.

ERCEGOVAC, D. & TURUBATOVIC, R. (1954). Le diagnostic de la rage basé sur l'apparition prématurée des corpuscles de Negri. [**Diagnosis of rabies based on the early development of Negri bodies in experimental animals.**]—*Bull. Off. int. Epiz.* 42, May, pp. 115-121. [English summary.] 659

In a series of experiments on white rats 3-8 weeks old, 0.02 ml. of virus was inoculated intracerebrally, a search for Negri bodies being made daily from the 2nd to the 7th day. Negri bodies were demonstrable in 80% of cases on the 5th day and in 90% on the 6th day. They appeared earliest at the inoculation site and were always seen in rats allowed to die from the disease.—G. V. LAUGIER.

KOPROWSKI, H. (1954). **Biological modification of rabies virus as a result of its adaptation to chicks and developing chick embryos.**—*Bull. World Hlth Org.* 10, 709-724. [French summary. Author's synopsis modified.] 660

K. described experiments which indicated a change in pathogenicity for lab. animals of the Flury strain of rabies virus after large numbers of egg passages. Factors such as dilution of virus, number of egg passages, age of animals, and route of inoculation were taken into account. He concluded that living chick-embryo-adapted virus could be used both as a vaccine administered before exposure to rabies virus, and as an adjunct to antiserum in the protective treatment of animals after exposure.

STARR, L. E., CLOWER, T. B., BROMLEY, C. L., JR. & ROUTH, C. F. (1954). **Antirabic immunization of cattle in Georgia using living virus vaccine of chick embryo origin.**—*Vet. Med.* 49, 366-370 & 402. 661

Sixty-nine per cent. of animals receiving one intramuscular inoculation of antirabic vaccine showed a solid immunity to challenge with virulent virus after six and a half months. In one experiment the immunity appeared to be of a higher order in adults than in young stock, but serum neutralization studies (to be published) indicated that young animals respond to vaccination as well as mature animals. The safety of the vaccine was proved in 1,107 cattle of various ages.—C. A. E. BRIGGS.

JOHNSON, H. N. (1954). **Experimental studies on the duration of immunity in dogs vaccinated against rabies.**—*Bull. World Hlth Org.* 10, 725-729. [French summary.] [Abst. from author's synopsis.] 662

In lab. studies it was shown that dogs vaccinated with phenol-treated killed-virus vaccine have a high degree of immunity at one year after inoculation and that the immunity produced with the Flury-strain live-virus vaccine is superior to, and of longer duration than, that obtained with chemically-treated brain-tissue virus vaccine.

HELL, H. (1954). La rage et sa prophylaxie en Autriche. [**Preventive immunization against rabies in Austria.**]—*Bull. World Hlth Org.* 10, 761-765. [In French. English summary slightly modified.] 663

Since the second world war, rabies in Austria has reached epizootic proportions, the number of rabid animals having increased from 104 in 1950 to 226 during the first half of 1953. These figures include dogs and other animals, both wild and domestic. The Austrian legal prescriptions for the prevention of rabies are described; although they lay down a number of measures to be taken in any outbreak of rabies, various circumstances make it impossible to carry them out in all cases. Antirabies vaccine for use in human beings is prepared from a killed, fixed virus obtained through passage, in the rabbit and for domestic animals from Neusatz fixed virus. Vaccination may be made compulsory for dogs but not for exposed persons, and preventive vaccination of dogs has been carried out in recent years with apparently good results.

KAPLAN, M. M., GOOR, Y. & TIERKEL, E. S. (1954). **A field demonstration of rabies control using chicken-embryo vaccine in dogs.**—*Bull. World Hlth Org.* 10, 743-752. [French summary.] [Abst. from authors' synopsis.] 664

The authors reported on a WHO-sponsored field trial of the use, in conjunction with other

usual control measures, of modified living-virus vaccine prepared in chick embryos in a mass vaccination campaign in dogs in Israel, where rabies was highly enzootic. The mass immunization of dogs with this vaccine was considered to have been the decisive factor in reducing the incidence of the disease to a low level during the past 3 years.

POWELL, H. M. & CULBERTSON, C. G. (1954).

Recent advances in the preparation of anti-rabies vaccines containing inactivated virus.—*Bull. World Hlth Org.* **10**, 815-822. [French summary.] [Authors' synopsis modified.] **665**

The authors described experiments undertaken to determine the usefulness of 15 nitrogen-mustard and mustard-like drugs in inactivating fixed rabies virus for the preparation of anti-rabies vaccines. They selected five agents: $\beta\beta'$ dichloroethylamine, benzyl β -chloroethylamine, *N*-(2-hydroxyethyl)ethylene imine, 1-morpholino-2,3-epoxypropane, and butadiene monoxide, which gave promise of practical value in rendering rabbit-brain fixed rabies virus and duck-embryo fixed rabies virus non-infective for mice, at the same time allowing of successful antirabies immunization.

JERVIS, G. A. (1954). **Experimental allergic encephalitis in animals, and its bearing upon the etiology of neuroparalytic accidents following antirabies treatment in man.**—*Bull. World Hlth Org.* **10**, 837-844. [French summary.] [Author's synopsis modified.] **666**

In an attempt to throw light upon the aetiology of neuroparalytic accidents following antirabies treatment in man, J. analysed the process and effects of experimentally induced allergic encephalitis in various animals. He concluded that the two conditions are apparently identical, and suggested that the solution to the problem of neuroparalytic complications be sought in either the elimination of the encephalitogenic factor or the use of an antirabies vaccine which does not contain brain tissue.

MEYER, K. F. (1954). **Can man be protected against rabies?**—*Bull. World Hlth Org.* **10**, 845-866. [French summary.] [Abst. from author's synopsis.] **667**

M. discussed the literature dealing with the protection of man against rabies over the past 70 years in various parts of the world and examined the salient problems. He discussed the measures in current use for eliminating canine rabies by quarantine, regulation of the dog population, and especially mass vaccination of dogs, with a detailed survey of the questions of immunological research which this method

raises. Measures for suppressing the disease in other carriers are also described. He concluded that, given effective education of the public and the widespread use of canine mass vaccination, human rabies is a preventable disease.

SHAUGHNESSY, H. J. & ZICHIS, J. (1954).

Treatment of wounds inflicted by rabid animals.—*Bull. World Hlth Org.* **10**, 805-813. [French summary:] [Abst. from authors' synopsis.] **668**

G. pigs were inoculated i/m with a strain of fixed-virus rabies, and their wounds treated, after intervals of varying duration, with different viricidal substances. Cauterization with fuming nitric acid gave no greater protection against the development of rabies than did irrigation with a 20% soap solution; a cationic detergent, "zephiran", was found to be the treatment of choice for wounds artificially contaminated with rabies virus.

ORTENZI, R. & TIECCO, G. (1954). Tentativi di coltivazione del virus del vaiolo ovino sulla M. C. A. di embrioni di pollo. [Cultivation of sheep pox virus in chick embryos.]—*Zooprofilassi.* **9**, 79-84. [English and French summaries.] **669**

Attempts to cultivate sheep pox virus on the chorio-allantoic membrane of 9-day-old chick-embryos were unsuccessful. However, during the first passage there was an initial, though transitory, multiplication of elementary bodies.—I. MARTINI.

TOBIN, J. O'H. (1954). **The growth of lymphocytic choriomeningitis virus in the developing chick embryo.**—*Brit. J. exp. Path.* **35**, 358-364. [Author's summary modified.] **670**

T. studied the growth of 2 strains of lymphocytic choriomeningitis (L.C.M.) virus in the chorio-allantois of the developing chick embryo. As with other viruses 4 phases of growth were found: a phase of disappearance of infective virus, a phase of rapid multiplication, a phase during which the virus titre remained constant, and a stage of decline. He determined the length of survival of virus in the chicks after hatching and the efficiency of different routes of inoculation. He discussed briefly the relation of the findings to virus growth and to L.C.M. infection.

REAGAN, R. L., DELAHA, E. C., COOK, S. R. & BRUECKNER, A. L. (1954). **Response of the cave bat (*Myotis lucifugus*) to the Lansing strain of poliomyelitis virus.**—*Cornell Vet.* **44**, 449-452. [Authors' summary modified.] **671**

The cave bat (*Myotis lucifugus*) was sus-

ceptible to the Lansing strain of poliomyelitis (mouse adapted) by intracerebral and intrarectal inoculation.

WINN, J. F. & SCATTERDAY, J. E. (1954). **Equine encephalomyelitis in Florida.** — *J. Amer. vet. med. Ass.* **125**, 115-116. [Authors' summary modified.] **672**

During an investigation in the fresh-water lake area of Florida, 73 cases of equine encephalomyelitis in horses, all fatal, were found. Two unconfirmed human cases were also reported. The brain taken from a 9-month-old filly, showing typical symptoms of the disease, revealed the presence of eastern equine encephalomyelitis virus by animal-inoculation tests. The disease appeared to be endemic in this region of central Florida and had existed there for many years.

PETEK, M. (1954). L'aborto equino da virus. [**Equine virus abortion.**] — *Vet. ital.* **5**, 508-518. [English, French and German summaries.] **673**

After describing the main features of virus abortion in mares, P. described a suspected outbreak of the disease in Thoroughbreds. Out of 9 mares served by one stallion, 5 became pregnant, and of these, 3 aborted. One 7-month aborted foetus was examined, and intranuclear inclusion bodies were demonstrated in its liver but not in the lungs.

—I. W. JENNINGS.

DOLL, E. R. & WALLACE, M. E. (1954). **Cultivation of equine abortion and equine influenza viruses on the chorioallantoic membrane of chicken embryos.** — *Cornell Vet.* **44**, 453-461. [Authors' summary slightly modified.] **674**

Hamster-adapted equine abortion and equine influenza viruses were carried successfully through several alternate passages between the chorio-allantoic membrane of chick embryos and unweaned hamsters. Subsequently the viruses were cultivated in serial passage on the chorio-allantoic membrane. Multiplication of the viruses was evident from the development of intranuclear inclusion bodies in cells of the ectoderm and mesoderm and from the infectivity of the serial passage membrane inoculums for unweaned hamsters. Specificity of the serial passage viruses was demonstrated by the neutralization of each virus by its homologous immune serum.

NAKAMURA, J., KISHI, S. & MIYAMOTO, T. (1954). Sur les caractéristiques de la multiplication du virus lapinisé-avianisé de la peste bovine dans les embryons de poulet. [**Cul-**

tivation of rinderpest lapinized virus on the chick embryo.] — *Bull. Off. int. Epiz.* **42**, May, pp. 692-709. [English summary.] **675**

The authors compared the effects on virus production of inoculation by the vein, yolk sac, chorioallantoic membrane and allantoic sac at different ages of the embryo, and of harvesting at different times. The best yield of virus was from 12-day embryos inoculated intravenously and harvested at 5-6 days, and from 5-day embryos inoculated into the yolk sac and harvested after 7-9 days.

—R. G. MARES.

POLSON, A. & TURNER, G. S. (1954). **pH stability and purification of lumpy skin disease virus.** — *J. gen. Microbiol.* **11**, 228-235. [Authors' summary copied verbatim.] **676**

Lumpy skin disease virus in allantoic fluid was found to be stable when subjected to wide variation of hydrogen-ion concentration under differing conditions of time and temperature. The virus could be concentrated by adsorption on the precipitate formed when allantoic fluid was dialysed at pH 4.5; adsorption on calcium phosphate was also demonstrated. Preliminary purification of the virus could be effected by these methods.

PRICE, D. A. (1954). **Susceptibility of bluetongue virus to magnamycin.** — *J. Amer. vet. med. Ass.* **125**, 199-202. [Author's summary modified.] **677**

P. demonstrated that carbomycin (magnamycin) alone was effective against the Sonora strain of bluetongue virus, when tested in chick embryos at a level of 17.5 mg./ml. of inoculum, but not at 12.5 mg./ml. A conc. of 12.5 mg./ml. was effective against the virus if the inoculum also contained streptomycin or penicillin or both. Chick embryos exhibited a remarkable tolerance for carbomycin in doses as high as 10 mg. per embryo.

MC EWEN, A. D. (1954). **Enzootic abortion of ewes. Adjuvant vaccines prepared from infected ovine foetal membrane tissues: the resistance of vaccinated pregnant sheep to the inoculation of virus.** — *Vet. Rec.* **66**, 505-508. [Author's summary and conclusions modified.] **678**

Sheep injected with vaccine consisting of a water-in-oil emulsion of alum-precipitated infected ovine foetal membrane tissue developed an immunity that conferred a high degree of resistance to the inoculation of the ewe abortion virus during pregnancy. Emulsion vaccines prepared with either "falba" or "emocithin" as the emulsifying agent were equally antigenic.

No adverse reactions followed the injection of female breeding sheep with vaccines prepared from infected ovine foetal membrane tissues emulsified in mineral oil.

MÜSSEMEIER, F. (1952). Die Bekämpfung der Schweinepest. [Control of swine fever in Germany.]—*Arch. exp. VetMed.* 6, Suppl. pp. 97-104. 679

M. considered that the control of swine fever in Germany should be done only by the stamping-out method and not by immunization in conjunction with other methods. The meat of the slaughtered pigs can be sold after boiling or stewing (steaming). He emphasized the need for preventing the introduction of the virus from countries with swine fever by imported pigs or meat products.—H. BEHRENS.

DALE, C. N. & ZINOBER, M. R. (1954). Variations (variants) of hog cholera virus. II. Perpetuation and attempts at enhancement of variant characteristics of hog cholera virus by means of serial passage with antiserum and without antiserum.—*J. Amer. vet. med. Ass.* 125, 137-143. [Authors' summary and conclusions modified. For Part I, see *V.B.* 21, 3568.] 680

A commercial swine fever virus responsible for post-vaccination losses in 1949 and shown to have variant characteristics was passaged serially 9 times simultaneously with serum and followed by 7 serial passages without serum. The 9th passage with serum retained its variant characteristics as also did the 7th passage without serum. When similarly tested, the 14th passage did not retain variant characteristics. Passaging the virus 7 more times simultaneously with serum failed to cause the reappearance of variant characteristics. Thus, variant swine fever virus may be prepared by either of the first two procedures, but not by either of the last two procedures.

Variant characteristics of a variant swine fever virus were maintained after storage at -70°C . for 1,197 days, or for 439 days at -70°C . followed by 740 days at -40°C .

DUCKWORTH, C. U. & CLARKSON, M. R. (1954). L'exanthème vésiculeux du porc. [Vesicular exanthema of the pig.]—*Bull. Off. int. Epiz.* 42, May, pp. 378-385. 681

The authors described the clinical symptoms and differential diagnosis of vesicular exanthema and gave a short history of the disease in the U.S.A. Eradication and control by movement restrictions, disinfection of transport, boiling of swill, market inspections etc.,

have greatly reduced the incidence of the disease.—G. V. LAUGIER.

HJÄRRE, A. (1952). Vergleichende Untersuchungen über Shopes Schweineinfluenza und eine in Schweden bei Ferkeln vorkommende enzootische Viruspneumonie. [A study of swine influenza and enzootic virus pneumonia of pigs in Sweden.]—*Arch. exp. VetMed.* 6, Suppl. pp. 82-89. 682

Enzootic virus pneumonia of pigs in Sweden and swine influenza are caused by two distinct strains of virus.—H. BEHRENS.

YAKOVLEV, S. A. (1954). [Immunization of dogs against distemper.]—*Veterinariya, Moscow.* 31, No. 6, pp. 28-30. [In Russian.] 683

Y. reported his results with the formolized chick embryo vaccine described by Tsherkaski. The virus was adapted to the chick embryo by alternating passages between puppy and chick embryo. By the time it was adapted its virulence for the puppy was lost, but not its immunogenic properties. The vaccine gave no untoward reactions except slight fever. Of 4,409 vaccinated dogs, some of which were already incubating the disease, 9.2% fell ill; of 758 controls 36.5%. The immunity conferred by the vaccine lasted at least 6 months, in older dogs longer. For therapeutic purposes the serum of hyperimmunized dogs was used with excellent results.—A. MAYR-HARTING.

CANDLIN, F. T. (1954). Cortisone and ACTH in the treatment of chronic distemper (so-called hard-pad disease).—*N. Amer. Vet.* 35, 764-768. 684

C. claimed good results for the treatment of hard pad disease of dogs with cortisone, 25-50 mg. according to body wt., twice daily by mouth for 5-7 days, followed by a course of treatment with adrenocorticotrophic hormone (A.C.T.H.) for 4-5 days at a dosage of 12.5-25 units for small dogs and 25-50 units for large dogs, administered by intramuscular injection. The dosage of A.C.T.H. was progressively reduced by 2-3 units each day of treatment. Thirty-six out of 51 dogs with nervous symptoms of the disease recovered after this treatment.—R.M.

GORHAM, J. R., LEADER, R. W. & GUTIERREZ, J. C. (1954). Distemper immunization of mink by air-borne infection with egg-adapted virus.—*J. Amer. vet. med. Ass.* 125, 134-136. 685

The authors exposed two groups of 33 and 226 mink to egg-adapted distemper virus in aerosol form. In the first group each mink

was placed in a confined space and exposed to the equiv. of 0.3 ml. vaccine for 3 min. Each of the second group was exposed to the equiv. of 1 ml. vaccine for one min. None of the first group developed distemper when challenged with virulent virus 32 days later. Virus neutralizing bodies were present in the blood of 22 out of 25 of the second group 41 days after exposure to the vaccine.—R.M.

MANTOVANI, A. (1954). Vaccino associato contro il cimurro e l'epatite infettiva del cane. [**Combined immunization against distemper and canine virus hepatitis**].—*Vet. ital.* **5**, 605-612. [English, French and German summaries.] **686**

M. reported favourably on the use of a combined distemper and canine virus hepatitis vaccine, used in conjunction with bivalent immune serum. The vaccine gave good immunity with no untoward reactions, and there seemed to be no evidence of interference between the two viruses.—I. W. JENNINGS.

FIELDSTEEL, A. H. & EMERY, J. B. (1954). **Cultivation and modification of infectious canine hepatitis virus in roller tube cultures of dog kidney**.—*Proc. Soc. exp. Biol., N.Y.* **86**, 819-823. [Authors' summary modified.] **687**

The authors demonstrated propagation of the virus of canine virus hepatitis with the production of distinctive cytological changes in roller tube cultures of dog kidney. After 51 serial passages in pig kidney explants the virus had apparently lost its virulence for dogs, although it produced a solid immunity. They described a practical neutralization test for the diagnosis of canine virus hepatitis.

SCHULTZ & FEILING. (1954). Zur Schutzimpfung gegen Geflügelpest. [**Vaccination against Newcastle disease**].—*Mh. Tierheilk.* **6**, 181-186. **688**

Newcastle disease affected many birds, on a number of different farms, which had previously been vaccinated against Newcastle disease with adsorbate vaccine. The breakdown of the vaccination was believed to be due to the stress put on the birds during transport to and from a market, where they were exposed to the infection.—W. G. SILLER.

ASPLIN, F. D. & McLAUCHLAN, J. D. (1954). **Duck virus hepatitis**.—*Vet. Rec.* **66**, 456-458. [Authors' summary modified.] **689**

The authors described an outbreak of disease which occurred amongst ducklings on a farm in Norfolk. The course, symptoms and

lesions of this disease resembled accounts of duck virus hepatitis in U.S.A. [*V.B.* **20**, 2296]. A virus was isolated from affected ducklings. This virus was neutralized by duck hepatitis antiserum from the U.S.A.

POMEROY, B. S. & SIEBURTH, J. M. (1954). **Bluecomb disease of turkeys**.—*Proc. 90th Ann. Meet. Amer. vet. med. Ass.* Toronto, July 20-23, 1953. pp. 321-328. [Authors' summary modified.] **690**

"Blue comb disease" affected turkeys of all ages. In the authors' experience, mortality was 25-50% in young poults and 5-25% in "range" turkeys. Recovered birds lost weight. The disease appeared to be infectious and was reproduced in young poults by feeding unfiltered intestinal material from affected birds. A transmissible agent could not be demonstrated in the liver, spleen, pancreas, heart, and kidney. Either penicillin or streptomycin, given in the drinking water, reduced mortality. Aureomycin was ineffective. Copper sulphate in the drinking water, alone or in combination with whey, had no effect on the course of the disease.

ANON. (1954). **Cultivation of measles virus**.—*Lancet*. **267**, 322-323. **691**

An annotation on a recent paper by Enders & Peebles (1954) announcing the growth of measles virus in tissue culture.—W. R. BETT.

BOYD, J. S. K. (1954). **Bacteriophage and heredity**. [Correspondence].—*Nature, Lond.* **173**, 1050-1051. **692**

Uninfected cells of *Salmonella typhimurium* exposed to a high concentration of free phage A₃ or A₄ become lysogenic and do not reabsorb the phage. Since the absorptive ability is inheritable B. suggested that the phage blocks the gene controlling receptor formation.—A. SEAMAN.

PHILIP, C. B., HADLOW, W. J. & HUGHES, L. E. (1954). **Studies on salmon poisoning disease of canines. I. The rickettsial relationships and pathogenicity of *Neorickettsia helmintheca***.—*Exp. Parasit.* **3**, 336-350. **693**

The rickettsial nature of salmon disease of dogs on the Pacific coast of the U.S.A. was first reported by Cordy & Gorham [*V.B.* **21**, 98]. The present authors confirmed the work of Cordy & Gorham, and transmitted the disease to dogs, in series, by blood and fresh or frozen lymph nodes from infected dogs, as well as suspensions of adult flukes (*Nanophyetus [Trogloremia] salmonicola*). The incubation period was 8-10 days, followed by several days

of acute fever. Mortality was high, but dogs that had recovered possessed solid immunity. They recommended that the causal agent should be placed in the family Rickettsiaceae by

changing the vector character of the family from 'arthropod-borne' to 'invertebrate-borne' and suggested that it be named *Neorickettsia helmintheca*.—R.M.

See also absts. 575 (bacteriophage active against virulent tubercle bacilli); 633 (concurrent coccidiosis and Newcastle disease); 799 (control of milk-borne diseases); 840-841 (reports, Australia); 842-843 (reports, Sudan); 844 (report, Cyprus); 846 (report, Trinidad & Tobago); 847 (report, Seychelles); 850 (report, O.I.E.); 853 (book, laboratory diagnosis of virus diseases).

IMMUNITY

BURNET, MACF. (1954). **The newer approach to immunity in its bearing on medicine and biology.** — *Brit. med. J.* July 24th, 189-193. 694

The fifth Frederick Price Lecture delivered at the Royal College of Physicians, Edinburgh, dealt with the nature of antibody and of antibody production; the significance of pattern in biological reactions; tissue transplantation; serum hepatitis; and auto-antibodies in relation to disease.—W. R. BETT.

SILVERSTEIN, A. M. (1954). **Studies on the complement function. II. The dual activity of complement.** — *J. Immunol.* 73, 163-168. [Author's summary modified.] 695

Changes in the degree of sensitization of the erythrocytes or of the haemolysis time were shown to affect the activities of several complement solutions to different extents. S. attributed these peculiarities to differences in the C component ratios of the solutions. He suggested that two functional activities are involved in C interactions, one taking part in fixation and the other involved in a subsequent haemolytic attack on the erythrocyte. He attributed apparent anomalies in C activity to the interactions of these two agents.

THIVOLET, J. & ROLLAND, M. (1954). Influence de l'agitation mécanique sur la fixation de l'anticorps immobilisant. [**Influence of mechanical agitation on fixation of immobilizing antibodies.**] — *Ann. Inst. Pasteur.* 86, 109-112. 696

In an attempt to reduce the period of delay in the fixation of immobilizing antibodies against *Treponema* the authors found that when the tubes were mechanically agitated at 80 to 100 movements per min. there was a lower percentage immobilization than in non-agitated control tubes.—E. J. L. SOULSBY.

ASKONAS, B. A., CAMPBELL, P. N., HUMPHREY, J. H. & WORK, T. S. (1954). **The source of antibody globulin in rabbit milk and goat colostrum.** — *Biochem. J.* 56, 597-601. 697

In the rabbit antibody protein passes from

the blood into the milk without degradation and resynthesis. In the goat it also passes from the blood into the colostrum without degradation and resynthesis.—W. R. BETT.

SCHMIDT, S. (1954). Sur le rôle de certaines substances non spécifiques dans l'immunisation active avec les toxines et les ultravirus. [**The role of non-specific substances in active immunization with toxins and viruses.**] — *Bull. Off. int. Epiz.* 41, 78-96. 698

A general discussion on the various adjuvants which may enhance antibody production when combined with toxins, bacteria and viruses. Delayed absorption induced by the adjuvant plays a significant role but antigenic modifications by local inflammatory materials are also considered to be of significance.—E. J. L. SOULSBY.

I. LOVELL, R. R. H., PRYCE, D. M. & BOAKE, W. C. (1954). **The necrotic lesion in guinea-pig skin produced by certain human sera.** — *Brit. J. exp. Path.* 35, 345-349. [Authors' summary slightly modified.] 699

II. BOAKE, W. C. & LOVELL, R. R. H. (1954). **The necrotizing activity of human sera for guinea-pig skin.** — *Ibid.* 350-357. [Authors' summary slightly modified.] 700

I. Some fresh samples of human serum cause necrosis when injected into the g. pig's skin; others cause only redness and swelling. Necrotizing activity is lost when the serum is heated at 56°C. for 30 min.

The necrotic reaction has two conspicuous features which appear within 10 min. of injection; engorgement and dilation of the capillaries and veins, with mural thrombi, and segmental necrosis of muscle fibres in the panniculus carnosus. The muscle changes are also produced by injection of necrotizing serum into the skin of a dead g. pig maintained at 37°C.

II. Fresh serum samples from patients with rheumatoid arthritis and also from patients with a variety of other diseases in which inflammation is often present, produce

necrosis when injected intradermally into g. pigs.

The necrotizing factor is not dialysable. Necrotizing activity is lost when serum is de-

complemented but activity is not restored by restoration of complement. The factor does not appear to be an anti-g. pig antibody nor is it related to Forssman antibody.

See also absts. 566-567 & 582-584 (TB.); 586 (melioidosis); 588 (bacterins); 589 (pasteurellosis); 598 (S. cholerae-suis); 600-606 (brucellosis); 628 (agglutination of V. fetus by vaginal mucus agglutinating also Tr. foetus); 642-647 (F. & M. disease); 652-667 (rabies); 678 (enzootic abortion of ewes); 679-680 (swine fever); 683-686 (distemper); 688 (Newcastle disease).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

MCGREGOR, W. S., RADELEFF, R. D. & BUSH-LAND, R. C. (1954). **Some phosphorus compounds as systemic insecticides against cattle grubs.**—*J. econ. Ent.* 47, 465-467. 701

In preliminary tests the organic phosphorus insecticides "diazinon", "chlorthion" and two other proprietary compounds designated "L13/59" [dimethyltrichloro-1-hydroxyethylphosphate], and "21/199" [chloromethylumbelliferone diethyl thiophosphate] when administered either by subcutaneous injection, or by mouth, to cattle infested with the larvae of *Hypoderma bovis*, killed the larvae present in the back at the time of the administration, at the dosage rate of 5-50 mg. per kg., and prevented the appearance of fresh "warbles" for 2-3 weeks.—D. W. JOLLY.

LÜHRS. (1954). Die Bekämpfung des Dasselbafalls in Westdeutschland. Dasselbafall 1953 im Vergleich zu dem des Jahres 1908. [Comparison of the control of *Hypoderma bovis* in Western Germany in 1908 and 1953.]—*Prakt. Tierarzt.* No. 4, pp. 81-85. 702

For many years warble fly control was not systematically tackled in Germany. Then, in 1934, it was laid down that each district was to employ one "dewarbler" for every 200 cattle. This was discontinued in 1938, as a result of legislation restricting the movement of persons from farm to farm, introduced to prevent the spread of F. & M. disease.

L. advocated control measures consisting of systematic use of the usual chemical agents on the skin site.—H. BEHRENS.

BOUVIER, G. (1953). La lutte contre le varon (larve de l'hypoderme) au moyen des insecticides modernes en Suisse. [Use of modern insecticides against ox warbles in Switzerland.]—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. 1, Pt. 1. 442-444. [In French. English and German summaries.] 703

An account of the control of ox warbles in Switzerland, where, from June to September, many of the cattle are moved from the valleys to upland pasture. Inspectors of the veterinary service treat the larvae which appear under the skin of the cattle while they are

housed in the lowlands. A proportion of the larvae, however, are late in development, and do not appear under the skin until the cattle have been moved to the uplands, away from veterinary supervision. The result is that many warbles pupate and hatch on the upland pastures. The experience of careful owners has shown, however, that these late warbles can be successfully treated by the cowman with an ointment containing the γ -isomer of benzene hexachloride.—A.S.

WERTEJUK, M. (1954). O skuteczności ciemierzycy zielonej (*Veratrum lobelianum*) w zwalczaniu gza bydłęcego. [Use of infusion prepared from *V. lobelianum* for the control of *Hypoderma*.]—*Méd. vét., Varsovie.* 10, 193-194. [In Polish.] 704

W. stated that a freshly prepared infusion of *V. lobelianum* rubbed on to the area of skin in which warbles are situated kills the larvae.

—J. R. MITCHELL.

WILSON, S. G. (1954). A preliminary study of the *Glossina pallidipes* Austen population at Makueni, Kenya.—*Bull. ent. Res.* 45, 141-161. 705

G. pallidipes was the dominant species at Makueni, Kenya, although *G. longipennis* and *G. brevipalpis* were present. Evidence from catches of systematic fly patrols indicated a seasonal incidence of *G. pallidipes*, which was most prevalent in February and March immediately before the onset of the rains. W. suggested that this rise in the fly numbers was due to a migration from the dry bushlands towards the riverine shade.—D. W. JOLLY.

RAJ, J. S. (1954). Elaterid grubs from cutaneous myiasis in goat.—*Curr. Sci.* 23, 163. 706

An account of accidental occurrence of larvae of the common click beetle, *Agrypnus* sp., found together with *Chrysomya* larvae in a cutaneous lesion in a goat in Karaikudi, India. —E.G.

MARKIEWICZ, K. (1954). Próba leczenia świerzbu u lisów srebrnych doustnym podawaniem gamexanu. [Benzene hexachloride administered orally for the control of mange in foxes.]

—*Méd. vét., Varsovie*. 10, 349. [In Polish.] 707

M. stated that 0.05 g./kg. of benzene hexachloride given *per os* daily for 3 days to four silver foxes with sarcoptic mange and repeated after a weekly interval was curative within 5 weeks.—J. R. MITCHELL.

JACOB, E. (1953). Über das Vorkommen einer in Schlesien 1943 entdeckten *Trombicula*-Art in Nordwest-Deutschland. [*Trombicula* sp. in N.W. Germany.] — *Dtsch. tierärztl. Wschr.* 60, 251-252. 708

Various rodents in N.W. Germany are re-

See also absts. 625 (development of *T. cruzi* in *Triatoma protracta*); 840 (report, Australia); 845 (report, Mauritius); 847 (report, Seychelles); 848 (report, Nyasaland).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

VOGEL, H. & FALCÃO, J. (1954). Über den Lebenszyklus des Lanzettegels, *Dicrocoelium dendriticum*, in Deutschland. [Life cycle of *Dicrocoelium dendriticum* in Germany.] — *Z. Tropenmed. u. Parasit.* 5, 275-296. [English summary.] 710

Working in Germany, the authors confirmed the findings of Krull & Mapes in the U.S.A. [*V.B.* 22, 2123, 2124, 3441; 23, 955, 1612, 1973, 2317; 24, 145] that ants (*Formica fusca*) were the second intermediate hosts of *D. dendriticum*. They found cysts of the worm in 4 out of 314 ants from an infested area, and estimated that it took 38-56 days for cysts to develop into mature metacercariae within the ant.—R.M.

KENDALL, S. B. (1954). Fascioliasis in Pakistan. — *Ann. trop. Med. Parasit.* 48, 307-313.

[Authors' summary slightly modified.] 711

In Pakistan *Fasciola hepatica* and *F. gigantica* are transmitted respectively by the two snails, *Limnaea truncatula* and *L. auricularia rufescens*, which differ markedly in their ecological requirements and in their geographical distribution. K. suggested that throughout the world all the snail hosts of *F. hepatica* and all those of *F. gigantica* are likely to correspond respectively, both in form and in ecology, with the snails *L. truncatula* and *L. auricularia* sens. lat.

BERG, E. (1953). Effect of castration in male mice on *Schistosoma mansoni*. — *Proc. Soc. exp. Biol., N.Y.* 83, 83-85. [Abst. from author's summary.] 712

Male albino mice in two groups (1) castrated and (2) entire animals as controls were given similar doses of cercariae of *S. mansoni*; they were killed 9 weeks later and the adult

corded as hosts of larvae of *Trombicula* species. J. discussed the pathogenicity of the larvae in man and animals.—E. J. L. SOULSBY.

FURMAN, D. P. (1953). Comparative evaluation of control procedures against the northern fowl mite [*Bdellonyssus sylviarum*]. — *J. econ. Ent.* 46, 822-826. 709

A 1% aqueous solution of *p*-chlorophenyl phenyl sulphone ("sulphenone") with a wetting agent, used as a spray, or a dust containing either 10% sulphenone or 10% 2 (*p*-chlorophenoxy) methane was effective against infestations with *Bd. sylviarum*.—JAS. G. O'SULLIVAN.

parasites were collected, separated according to sex, and counted. The number of male schistosomes in group (1) was lower than in group (2). B. suggested that there might be a relationship between the male sex hormone of the host and the male parasite.

JARRETT, W. F. H., MCINTYRE, W. I. M. & URQUHART, G. M. (1954). Husk in cattle. A review of a year's work.—*Vet. Rec.* 66, 665-676. Discussion: No. 45. pp. 692-695. 713

An account of parasitic bronchitis in calves and adult cattle in the West of Scotland, and of experiments which showed that lungworm larvae survived for up to 13 months on pasture. The authors discussed the problem of carriers, the significance of faecal larval counts, the relationship of parasitic bronchitis to pneumonia characterized by progressive lymphoid hyperplasia around the bronchi and bronchioles ("cuffing" pneumonia), and methods of control. They described field observations and experimental work on the disease in cattle kept out of doors and in housed cattle.—R.M.

WHITTEN, L. K. (1954). Observations on the incidence of *Ascaris lumbricoides* in New Zealand pigs. — *N. Z. vet. J.* 2, 37-40. [Author's summary slightly modified.] 714

A survey of the incidence of *Ascaris lumbricoides* in pigs slaughtered in various parts of New Zealand showed that the parasite was very rare in the North Island where only 0.1% of 60,000 pigs were infested. In the South Island the incidence was much higher, 10.1% of 1832 pigs being infested. W. discussed the possibility that the feeding of skim milk was responsible for the low incidence.

ERHARDT, A. (1954). Chemotherapeutische Untersuchungen mit Hetrazan. [Chemotherapeutic research on diethylcarbamazine acid citrate ("hetrazan").] — *Z. Tropenmed. u. Parasit.* **5**, 302-305. [English summary.] 715

Diethylcarbamazine acid citrate was effective against *Toxocara cati* infestations in cats when given by stomach tube at 0.01 g./kg. body wt. or by intraperitoneal injection at 0.05 g./kg. These doses, however, were liable to cause vomiting, and lower doses were much less effective. The drug was ineffective against *Ancylostoma* and *Taenia* infestation of cats, *Trichinella spiralis* in rats, and *Passalurus ambiguus* in rabbits, at an oral dosage of 0.01-0.6 g./kg. body wt.—R.M.

MALHERBE, W. D. (1954). The chemotherapy of *Filaroides osleri* (Cobbold, 1879) infestation in dogs: a progress report.—*J. S. Afr. vet. med. Ass.* **25**, No. 2, pp. 9-12. 716

A satisfactory treatment of *F. osleri* infestation in dogs consisted of the oral administration of 10 mg. per kg. body wt. diethylcarbamazine acid citrate ("hetrazan") three times daily for a week, combined with the intravenous injection of 1.5-2 ml. of either lithium antimony tartrate ("anthiomaline") or stibophen ("fouadin") once daily. Treatment was judged to be effective when eggs of *F. osleri* were no longer present in bronchial swabs. I/v injection of 5 ml. of either lithium antimony tartrate or stibophen were also effective, if given once weekly for 9-12 weeks. Diethylcarbamazine acid citrate, when given alone, was ineffective. —R.M.

See also abst. 832 (comparison of two helminth-egg counting chambers).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS].

SCHULTE, F. & WELZ, G. (1952). Ein im Anschluss an einen Hufschlag entstandenes osteochondroplastisches Sarkom der Rippen beim Hund. [Osteo-chondroplastic sarcoma of the ribs in a dog following a kick by a horse.] — *Z. Krebsforsch.* **58**, 275-384. 717

An account of an osteo-chondroplastic sarcoma of the ribs of a dog, from which it died 36 days after being kicked in the same ribs by a horse. The owner had noticed no abnormality before the kick. The tumour apparently originated from the periosteum of the ribs, and attained the size of a child's head, being situated mostly within the thoracic cavity.—R.M.

I. ROMANELLI, V. & DOZZA, G. (1954). Contributo allo studio del mastocitoma nel cane. [Mastocytoma (mast cell tumour) in a dog.] — *Atti Soc. ital. Sci. vet., Cortina d'Ampezzo*, 1953. **7**, pp. 569-580. [English and French summaries.] 718

II. ROMANELLI, V. (1954). Contributo allo studio delle funzioni dei mastociti nel cane. [Function of mast cells in dogs, with reference to mast cell tumours.] — *Ibid.* pp. 580-584. [English and French summaries.] 719

I. A detailed account of a mast cell tumour located in the popliteal region of the right hind leg of a dog aged 4 years. The tumour had been present for about a year and was benign in type.

II. The mast cells of the tumour produced hyaluronic acid, although there are no details of the hyaluronic activity of the dog's normal mast cells.—I. W. JENNINGS.

BUSCH, G. (1953). Über einen übertragbaren Spontantumor beim syrischen Goldhamster. [A spontaneous transmissible tumour of the hamster.] — *Z. Krebsforsch.* **59**, 485-487. 720

A spontaneous polymorph-cellular sarcoma of the cheek-pouch of a hamster was transmitted to other hamsters by s/c and also by i/m inoculation through 50 passages.—R.M.

GIORDANO, G. (1954). Modificazioni del tracciato elettroforetico in ratti portatori di tumore da benzopirene. [Changes in the electrophoretic pattern of the serum of rats bearing tumours induced by benzpyrene.] — *Boll. Soc. ital. Biol. sper.* **30**, 612-614. 721

In rats with 3-month-old tumours which had been induced by benzpyrene the α_1 and α_2 fractions of the serum were increased, and the β and γ fractions were decreased. Four months after removal of the tumours, these fractions reverted to their normal values.—R.M.

NIEPAGE, H. (1954). Zur Diagnose der Rinderleukose durch den Leukoseschlüssel. [Diagnosis of leucosis in cattle.] — *Berl. Münch. tierärztl. Wschr.* **67**, 253-255. [English summary.] 722

The diagnosis of leucosis in cattle cannot rest merely on the demonstration of an increased number of circulating lymphocytes, without attention to the cell morphology. In cattle, a not uncommon lymphocytosis seems to be chiefly due to splenic stimulation of little understood origin—brucellosis for example is a possible cause.—E. COTCHIN.

NUTRITIONAL AND METABOLIC DISORDERS

CARLSON, C. W., GUENTHER, E., KOHLMAYER, W. & OLSON, O. E. (1954). **Some effects of selenium, arsenicals, and vitamin B₁₂ on chick growth.**—*Poult. Sci.* **33**, 768-774. [Authors' summary modified.] **723**

Sodium arsenite, arsanilic acid or 3-nitro-4-hydroxyphenylarsonic acid improved the growth of chicks fed ordinary diets or diets containing 10 p.p.m. of selenium. Sodium arsenite or arsanilic acid were partially effective in counteracting the toxic effects of sodium selenite in a maize-soya bean type of diet. On this diet, the addition of vitamin B₁₂ was required for the manifestation of a selenium toxicity, which in this instance was measured by a reduction in growth rate of the chicks. There appeared to be a differential tolerance to selenium poisoning, and response to arsenical treatment, with respect to the type of chicks used.

MAYNARD, L. A. (1954). **Animal species that feed mankind: the role of nutrition.**—*Science.* **120**, 164-166. **724**

M., discussed, in relation to competition for basic food resources, the problem of providing the animal products needed by an increasing population. He mentioned research developments which increase the feed efficiency of animal production and enable the use for animal nutrition of products unsuitable for direct human use.—D. POYNTER.

NADEAU, J. D. (1954). **Problems arising from the use of antibiotics in poultry rations.**—*Proc. 90th Ann. Meet. Amer. vet. med. Ass.* Toronto, July 20-23, 1953. pp. 365-370. **725**
A general account.—R.M.

ROMOSER, G. L., SHORB, M. S. & COMBS, G. F. (1953). **Effect of orally administered penicillin-resistant microorganisms on growth of chicks.**—*Proc. Soc. exp. Biol., N.Y.* **83**, 17-21. [Authors' summary modified.] **726**

Pure cultures of *Bact. coli* and *Bact. aerogenes* were grown, lyophilized, and fed to chicks both with and without procaine penicillin G. Little or no growth response was obtained when either of these organisms were added to the ration without the antibiotic. Greater gains were obtained when 10 p.p.m. procaine penicillin G were fed. When viable cultures of *Bact. coli* were fed in combination with penicillin, growth was further increased significantly. The effectiveness of the antibiotic in promoting chick growth was increased 64 and 80% when these organisms were added to the feed. The

results obtained illustrate the influence of bacterial environment on the antibiotic growth effect and in nutritional studies.

SLINGER, S. J. & PEPPER, W. F. (1954). **Effect of penicillin on the growth and feed consumption of turkey poults.**—*Poult. Sci.* **33**, 746-753. [Authors' summary modified.] **727**

Experiments were made to determine the effect of a diet containing 15 p.p.m. penicillin on the growth of turkey poults from birth to 28 days of age with either free choice or restricted food intake. The results indicated that, under the conditions employed, the mode of action of penicillin in stimulating the growth of turkey poults may be explained largely, though not entirely, on the basis of the increased food consumption per unit of body wt. which occurred during the first week of life.

BROOKS, C. C., GARNER, G. B., MUHRER, M. E. & PFANDER, W. H. (1954). **Effect of some steroid compounds on ovine rumen function.**—*Science.* **120**, 455-456. [Authors' summary modified.] **728**

Stilboestrol (10 or 20 p.p.m.) increased cellulose digestion by ovine rumen microorganisms *in vitro* and *in vivo* but could not be tolerated by wethers at these high levels.

Cholesterol and oestrone increased cellulose digestion by rumen micro-organisms *in vitro*.

DUSSARDIER, M. (1954). **Lieu d'origine de l'inhibition de la rythmicité gastrique des ruminants par l'acétylcholine et par l'adrénaline. [Inhibition of motility of the ruminant stomach by acetylcholine and adrenaline.]**—*C. R. Soc. Biol., Paris.* **148**, 446-449. **729**

The intravenous injections of adrenaline in sheep caused a peripheral inhibition and rumen motility owing to its action on neuromuscular junctions, whereas acetylcholine produced central inhibition by acting on a higher centre responsible for gastric motility. Resumption of movement was sudden after acetylcholine, but gradual after adrenaline.

—D. POYNTER.

HILGER-HEIDELBERG, D. (1954). **Ziegenmilchanämie beim Schwein. [Anaemia in a pig following excessive feeding with goats' milk.]** *Tierärztl. Umsch.* **9**, 62. **730**

An account of severe anaemia in an 80 lb. pig believed to be due to the excessive feeding of goat's milk.—W. G. SILLER.

NAFTALIN, J. M. (1954). **Nutrition and the liver. The influence of diet, environment and**

other factors on experimental liver necrosis in the rat. — *Proc. Nutr. Soc.* **13**, 120-125.

[Author's summary slightly modified.] **731**

N. described the composition of diets capable of producing liver necrosis in rats. The most commonly used 'necrogenic' diets are those with 5-10% of casein or 10-18% yeast as the source of protein, devoid of vitamin E and containing rancid or unsaturated fat. The nature of the casein or the yeast influences the 'necrogenicity' of the diet.

Whether or not dietary liver necrosis results when rats are fed on a 'necrogenic' diet depends on the interaction between the environment and the way the diet is fed (to appetite or restricted). Other factors such as age, sex, age at weaning, the pre-experimental treatment, and pregnancy, affect sensitivity to the development of acute liver necrosis.

HATZIOLOS, B. C., YAMIN-SMITH, M. L. & SHAW, J. C. (1954). **Histochemical studies of fat metabolism in mammary glands of lactating cows.** — *J. Dairy Sci.* **37**, 924-931.

[Authors' summary slightly modified.] **732**

From a comparison of the reactions given by the use of various staining methods for fatty substances in sections of bovine mammary gland tissue, with or without lipoid material removed, there was no evidence that free fatty acids were present in appreciable amounts in the proximal part of the secretory cells. All fatty droplets, from the largest, located at the free end of the secretory cells, to the smallest, occupying the middle space, appeared to be neutral fat.

DUNCAN, C. W., AGRAWALA, I. P., HUFFMAN, C. F. & LUECKE, R. W. (1953). **A quantitative study of rumen synthesis in the bovine on natural and purified rations. II. Amino acid content of mixed rumen proteins.** — *J. Nutr.* **49**, 41-49. [For parts I and III, see *V.B.* **23**, 2878 & 3146.] **733**

Fistula samples of rumen protein of calves were analysed microbiologically. The amino-acid contents with urea as the sole nitrogen source were similar to figures obtained when one calf was fed a natural diet. Phenylalanine, however, was lower. Calculated "minimum molecular weights" of the protein mixtures were also similar. [A slip in the authors' summary is confusing: histidine is mentioned when, apparently, phenylalanine is intended.]

—P. H. HERBERT.

TANK, G. W. & HERRIN, R. C. (1954). **Effect of protein and amino acids upon renal func-**

tion in the dog. — *Amer. J. Physiol.* **178**, 165-167. **734**

While a diet of casein and B vitamins did not raise postabsorptive creatinine clearance to an extent comparable to that produced by an equivalent amount of lean meat, i/v infusion of alanine raised both creatinine and *p*-amino-hippurate clearances, but a similar infusion of valine failed to do likewise, consistently.

—G. P. MARSHALL.

HOVE, E. L., COPELAND, D. H. & SALMON, W. D. (1954). **Choline deficiency in the rabbit.** — *J. Nutr.* **53**, 377-389. [Authors' summary slightly modified.] **735**

Rabbits were found to require about 0.13% choline in the diet for growth, maintenance of body weight, and prevention of fatty and cirrhotic liver and necrosis of kidney tubules. For growth, methionine had a slight, though definite, replacement value for choline. Monomethylaminoethanol, with methionine, was a very effective substitute for choline, while ethanolamine was inactive.

Vitamin B₁₂ plus folacin improved the utilization of methionine by the choline deficient rabbit for growth, but appeared to be of no value in sparing suboptimum levels of choline, or in promoting the utilization of monomethylaminoethanol plus methionine.

Moderate anaemia, a high icteric index but without plasma bile pigments or jaundice, and the excretion of porphobilinogen, were noted in the choline-deficient rabbits.

SEELEMANN, M. & GRAF V. BAUDISSIN, F. (1954). Experimentelle Untersuchungen über die Wirkung der Spurenelemente Vanadium, Kobalt und Kupfer, insbesondere auf das haematopoetische System bei parenteraler und oraler Verabreichung. [Effect of vanadium, cobalt and copper on the haemopoietic system, following parenteral and oral administration.] — *Zbl. VetMed.* **1**, 407-425. [English, French and Spanish summaries.] **736**

Forty-four rabbits of both sexes and divided into 18 groups were used in testing the effects of traces of Co (either as the sulphate or as "11,735 Hoechst", an organic Co complex), given either alone or in combination with "Ebesal Hoechst" (an organic Cu complex) and/or sodium orthovanadate, both orally and by intravenous or subcutaneous injection. Stimulation of erythropoiesis and of weight gain was most marked when the three trace elements were given together. Parenteral administration proved more effective than feeding. Combinations of two elements, in decreasing order, were

less effective, thus: Va + Co, Co + Cu, Va + Cu, in regard to haemopoiesis, and Va + Cu, Va + Co, Co + Cu, in regard to weight gain.

—G. P. MARSHALL.

ALLCROFT, R. (1954). **Hypomagnesaemia in cattle.**—*Vet. Rec.* **66**, 517-522. 737

An outline of the history of hypomagnesaemia in cattle, together with the results of recent work. It is necessary to maintain a continuous "flushing" of the animal with magnesium in order to prevent hypomagnesaemia during "susceptible" periods. The author recommended the use of oral supplements of calcined magnesite as a prophylactic and as a follow-up to the usual parenteral treatment of clinical cases.—D. POYNTER.

ROSE, A. L. (1954). **Osteomalacia in the Northern Territory.**—*Aust. vet. J.* **30**, 172-177. 738

As a consequence of the widespread utilization of superphosphate in the top-dressing of pastures, osteomalacia is not regarded as a problem in south-eastern Australia. The problem still exists however in the northern and relatively underdeveloped areas, where its clinical manifestations are mainly seen in breeding cows. R. discussed the seasonal and geographical distribution of the disease, symptoms, chemical data, and prevention and control.

—K. G. JOHNSTON.

MONTAGNA, W. (1954). **Penetration and local effect of vitamin A on the skin of the guinea pig.**—*Proc. Soc. exp. Biol., N.Y.* **86**, 668-672. [Authors' summary modified.] 739

Vitamin A dissolved in alcohol or chloroform penetrates the intact skin quickly by way of the sebaceous glands. Dissolved in linoleic or oleic acid, or in a viscous paste containing yellow soft paraffin, zinc oxide and talcum, it penetrates more slowly. Vitamin A dissolved in oleic or linoleic acid or in alcohol causes hypertrophy of the epidermis, but a similar hypertrophy is brought about by the fatty acids alone. Whereas the fatty acids, with or without vitamin A, seemed to retard keratinization slightly, the vitamin dissolved in alcohol does not. Hair growth was unimpaired even when massive doses of vitamin A dissolved in alcohol had been applied to the skin.

FERGUSON, T. M., ATKINSON, R. L. & COUCH, J. R. (1954). **Relationship of vitamin E to embryonic development of avian eye.**—*Proc. Soc. exp. Biol., N.Y.* **86**, 868-871. [Authors' summary modified.] 740

A cloudiness in the central portion of the lens was found in embryos from eggs laid

by turkey hens fed an all-vegetable protein diet without added vitamin E. Associated with the lens disorder was a haemorrhagic condition of the vitreous humour. The embryos were smaller than normal with oedematous areas on the neck and feet, and there was mortality between the 24th and 28th days of the incubation period. Supplementation of the all-vegetable protein diet with α -tocopheryl acetate prevented these conditions, but fish solubles, dried whey, or mixtures of these substances were ineffective.

BORNSTEIN, S. & SAMBERG, Y. (1954). **Field cases of vitamin K deficiency in Israel.**—*Poult. Sci.* **33**, 831-836. 741

The authors described the occurrence of a "haemorrhagic syndrome" in 8 flocks of fowls. They claimed good results for the treatment of affected fowls with a single intramuscular injection of 1-2 mg. of the vitamin K analogue, menadione sodium bisulphite.—R.M.

SEEKLES, L. (1953). **The biochemical approach to diseases.**—*Proc. XVth Int. vet. Congr., Stockholm.* 1953. Pt. II. 59-72. [In English.] 742

The value of biochemistry is accepted in routine veterinary practice and husbandry. The need now is to understand disease states in relation to multiple causation and disturbance of dynamic physiological equilibria. S. emphasized the role of disturbances of intestinal flora in production of various syndromes. He stressed the value of concepts such as the "adaptation syndrome", and that of metabolite/antimetabolite competition. He directed attention to factors tending to maintain equilibria, simultaneously with those which disturb them.—P. H. HERBERT.

ROBERTS, S. J. (1954). **Ketosis-parturient paresis complex.**—*J. Amer. vet. med. Ass.* **124**, 368-372. 743

Although ketosis may be precipitated by any factor which tends to upset the delicately balanced metabolism of the cow, in the high-production animals the primary cause is lactation. Therapeutic measures in ketosis (intravenous infusion of glucose, oral administration of sodium propionate or propylene glycol, intramuscular injection of cortisone or A.C.T.H. followed by oral dosage with aspirin) are successful only to the extent that they build up liver glycogen and raise and maintain the blood sugar levels. The problem of prevention of ketosis still requires much more basic research on hereditary, management and feeding factors and is still being unintentionally aggravated by

the average dairy farmer by his breeding policy and management and feeding practices. Parturient paresis is due to hypocalcaemia. A decline in the blood calcium levels always occurs with the onset of lactation, but may be excessive in the high-production cow of middle age or older and result in parturient paresis. R. discussed the differential diagnosis in cows that are recumbent or staggering near parturition time.—A. ACKROYD.

See also absts. 838 (apparatus for determination of energy exchange in calves and sheep); 840-841 (reports, Australia).

DISEASES, GENERAL

BAIN, A. M. (1954). Diseases of foals.—*Aust. vet. J.* **30**, 9-21. 745

WILTSHIRE, F. H. (1954). Diseases of foals.—*Ibid.* 22-25. 746

I. B. discussed the aetiology, treatment and control of most of the diseases of foals in order of their occurrence after birth. Difficulty in evacuating hard meconium may be due to impaction of the small colon or, in a milder form, to intestinal atony. Acute enteritis with severe scouring in young foals may be due to *Bact. coli* or *Cl. welchii* infections. In older foals salmonella are the usual cause of this condition. Mild scours occur at the first oestrus period of the dam after foaling and when foals are at grass. Rupture of the bladder at birth in colt foals occurs occasionally and has been treated satisfactorily by surgical repair. Jaundice may be due to iso-immunization of pregnancy or to infective hepatitis. Abnormalities of the umbilicus include previous urachus, abscess and hernia. Inguinal hernias invariably respond spontaneously. He described miscellaneous congenital deformities of the limbs. He gave an account of septicaemias, the most important group of foal diseases, under the headings of infection due to *Bact. viscosum equi*, *Bact. coli*, staphylococci and streptococci. Respiratory tract infections include pneumonia due to *Corynebact. equi*, contagious nasal catarrh and strangles. Botriomycotic tumours occur occasionally and are usually accompanied by a combined streptococcal and staphylococcal infection. He described internal parasitic infestations. Rickets is prevented by the administration of calciferol and creep-feeding a mineral supplement.

II. W. discussed the previous paper and described differences in treatment from those described by B., particularly in meconium retention and joint-ill. He reported a high incidence of infective jaundice which responded well to streptomycin. Congenital limb deform-

SMITH, V. R. & MERRILL, W. G. (1954). Parturient paresis. VII. A study of the leucocytes of cows with parturient paresis.—*J. Dairy Sci.* **37**, 967-975. [Authors' summary modified.] 744

The reaction of the leucocytes in milk fever in cows was similar to that obtained by an injection of A.C.T.H. The authors suggested that the stress of milk fever caused an increased secretion from the adrenal cortex.

ities require considerable patience to effect recovery. Ascariasis and strongylosis are responsible for considerable losses in young foals and W. attaches importance to management of pasture in controlling these infestations. He made some adverse criticism of phenothiazine as an anthelmintic for horses. He ascribed deaths at foaling time and a high incidence of umbilical hernias to neglect at delivery.

Discussion on these two papers included a description of an outbreak of leptospirosis in foals, the importance of nutrition in horse management, joint abnormalities caused by copper deficiency and the treatment of fractures.

—D. C. BLOOD.

FLOCH, H. (1954). Les maladies des rongeurs domestiques en Guyane française. [Diseases of laboratory rodents in French Guiana.]—*Rev. Elev.* **7**, 5-7. 747

F. gave a brief résumé of the diseases which he encountered in laboratory rodents in French Guiana from 1939-52.

Pasteurella infection in rabbits was common, sometimes caused by "*Past. multocida*" and sometimes by another pasteurella which he had described but not identified. Coccidial infection was present in nearly all rabbits, and accounted for most of the illness in young rabbits: *Eimeria stiedae* infection of the liver was the commonest, but enteritis caused by *E. magna* or *E. perforans* was not uncommon. *Salmonella typhi-murium* infection was common in g. pigs, rats and mice.—A.S.

CHITTY, D. (1952). Mortality among voles (*Microtus agrestis*) at Lake Vyrnwy, Montgomeryshire in 1936-9.—*Phil. Trans. Ser. B.* **236**, 505-552. 748

G. described changes in the population of voles in selected areas around Lake Vyrnwy, Wales, during a 3-year period. These changes were assessed by a system of trapping and marking the voles. He investigated mortality

in relation to age, lack of food, and other environmental factors, and did not pay particular attention to parasitic, infectious or other diseases. He mentioned that none of the voles transferred to a laboratory died as a result of parasitic infestation.—R.M.

MICHEL, J. F. (1954). **A contribution to the aetiology of fog fever.**—*Vet. Rec.* 66, 381-384. [Author's summary modified.] 749

The condition known as "fog fever"—pulmonary emphysema and oedema [the term 'fog' here referring to a second growth of grass; see *V.B.* 19, 547 & 2249; 21, 2975]—is frequently encountered in what are demonstrably outbreaks of parasitic bronchitis, especially in adult cattle. This syndrome may be produced by the administration of lungworm larvae to calves reared worm-free, housed, and fed on dry food. In these calves the syndrome may occur (a) 21-26 days after the initial infestation; (b) shortly after the initial infestation has been terminated by the phenomenon of self-cure; (c) 10-13 days after the administration of massive doses of larvae to a calf that has recovered from a previous infestation.

Lungworms were recovered from 15 out of 20 lungs from adult cattle with "fog fever". M. suggested that at either of the 3 stages referred to above, the self-cure mechanism is involved. He discussed Australian work on self-cure [*V.B.* 23, 2604]. He concluded that lungworm infestation is an important factor in the aetiology of a large proportion of cases diagnosed as "fog fever".

SMYTHE, R. H. (1954). **A contribution to the aetiology of fog fever.** [Correspondence.]—*Vet. Rec.* 66, 477-478. 750

S. found that certain plants may produce symptoms indistinguishable from "fog fever". He supported Michel [see preceding abst.] in the statement that "fog fever" is not necessarily a single entity with a single aetiology.

—D. POYNTER.

FORMSTON, C. (1954). **Infectious kerato-conjunctivitis of cattle (New Forest disease).**—*Vet. Rec.* 66, 522-527. [Author's summary modified.] 751

F. described clinical features of kerato-conjunctivitis in cattle, based mainly on 5 major outbreaks of the disease. The disease appears to be most active during the summer months, particularly if the weather is warm and humid. It is highly infectious and spreads readily to cattle in direct contact. It attacks cattle of all ages, but symptoms are more severe in young

stock. The keratitis responds readily to topical treatment if applied early.

LAMONT, H. G. (1954). **Gut edema in pigs (edema diseases or bowel edema).**—*Proc. 90th Ann. Meet. Amer. vet. med. Ass.* Toronto, July 20-23, 1953. pp. 186-192. 752

A general account of oedema disease of pigs, as seen in Ireland.—R.M.

HEDDLESTON, K. L., SHUMAN, R. D. & EARL, F. L. (1954). **Atrophic rhinitis. IV. Nasal examination for *Pasteurella multocida* in two swine herds affected with atrophic rhinitis.**—*J. Amer. vet. med. Ass.* 125, 225-226. [For previous parts, see *V.B.* 24, 1634-1636.] 753

Past. septica was isolated from washings of the nasal mucosa of 6 out of 76 pigs with atrophic rhinitis, and from 4 out of 94 apparently healthy pigs in infected herds.—R.M.

SCHOFIELD, F. W. & ROBERTSON, A. (1954). **Further studies in the pathology and bacteriology of infectious atrophic rhinitis of swine.**—*Proc. 90th Ann. Meet. Amer. vet. med. Ass.* Toronto, July 20-23, 1953. pp. 155-159. [Authors' summary modified.] 754

Rabbit-passaged material was not a consistently reliable source of the infectious agent of infectious atrophic rhinitis. Different strains of *Pasteurella septica* alone failed to produce infection. Atrophy of the turbinate bones, accompanied by facial deformity, followed intranasal instillation of mixed cultures of *Pseudomonas pyocyanea* and *Past. septica* in 3 out of 4 pigs. Pigs placed in a pen which had been occupied by infected pigs three weeks previously did not develop atrophic rhinitis.

LIEBISCH, H. (1954). **Die Histologie der Nebennierenrinde bei verschiedenen Erkrankungen des Hundes. (Ein Beitrag zum Stress-Problem.) [Histology of the adrenal cortex in dogs in disease. The stress syndrome.]**—*Wien. tierärztl. Mschr.* 41, 257-279. [English, French and Italian summaries.] 755

As compared to those of 3 healthy dogs, and as an expression of the non-specific stimulation of Selye's adaptation syndrome, the adrenal glands of 17 dogs affected with a number of different diseases (TB., lymphadenosis, renal osteodystrophia, distemper, osteosarcoma, eczema and pyometra) were found to be heavier and to have an increased lipid and decreased cholesterol content. The adrenal cortex tended to be enlarged and on histological examination, hypertrophic and hyperplastic and to contain large amounts of sudanophilic and anisotropic elements.—W. G. SILLER.

THOMPSON, J. J. (1953). **Symptoms and control of X chick disease.**—*N.Z. J. Agric.* **87**, 269, 270-272. **756**

A note on exudative diathesis in chicks [see also *V.B.* **23**, 3444].—E. A. GIBSON.

TUDOR, D. C. (1954). **A liver degeneration of unknown origin in chickens.**—*J. Amer. vet. med. Ass.* **125**, 219-220. [Author's summary modified.] **757**

A liver degeneration of unknown aetiology was observed in fowls from different farms in New Jersey, U.S.A. over a period of 20 years. Recently the incidence had greatly increased and was associated with considerable mortality in some flocks. T. described histological findings.

GRAY, J. E., SNOEYENBOS, G. H. & REYNOLDS, I. M. (1954). **The hemorrhagic syndrome of chickens.**—*J. Amer. vet. med. Ass.* **125**, 144-151. [Authors' summary modified.] **758**

The authors examined 102 fowls from 8 flocks affected with the "haemorrhagic syndrome" described by Baker & Jacquette [*V.B.*

24, 569]. The lesions were haemorrhages, anaemia, and a fatty state of the bone marrow. Necrosis of the liver and the presence of ulcers in the intestine were frequently observed at later stages of the disease. The clotting time of the blood was prolonged and there were fluctuations in the number of thrombocytes and granulocytes in the blood. In severely affected birds the terminal blood picture was frequently that of aplastic anaemia. They emphasized the variability of the symptoms in different flocks and in individual fowls of the same flock.

KOPP, J. (1954). Tierkrankheiten und geophysikalische Bodenreize. [**Disease in animals from tellurian radiation derived from subterranean water courses.**]—*Schweiz. Arch. Tierheilk.* **96**, 33-37. [In German. English, French and Italian summaries.] **759**

Tellurian radiation may arise from subterranean water courses, and a greater ionization may be produced in sharply defined areas in the air above, so-called radiation strips. The health of man and animals may be affected by such radiation.—W. G. SILLER.

See also *absts.* 564 (piglet mortality); 799 (control of milk-borne diseases).

POISONS AND POISONING

BOHOSIEWICZ, M. (1954). Zatrucia solą kuchenną u świń w świetle badań laboratoryjnych. [**Sodium chloride poisoning in pigs.**]—*Méd. vét., Varsovie.* **10**, 148-150. [In Polish.] **760**

B. found that the normal NaCl content of the stomach, small intestine, caecum and brain of pigs was 0.31%, 0.16%, 0.10% and 0.18% respectively, and that higher levels might be an indication of sodium chloride poisoning.

—J. R. MITCHELL.

HANSEL, W., OLAFSON, P. & MCENTEE, K. (1953). **Bovine hyperkeratosis: Studies on a German wood preservative.**—*Cornell Vet.* **43**, 311-324. **761**

A note on calves which developed hyperkeratosis when kept in a hut painted 2 years previously with a wood preservative. They developed severe skin lesions but were not depressed or emaciated, and their vitamin A plasma level never fell below 11 μ g. per ml. When they were killed and examined they were found to have very slight internal lesions.

Seven calves were fed the wood preservative or active fractions isolated from it. "It took 7-11 ml. [no further details] to bring about progressive fatal disease in 300-pound calves."

Analysis showed the active principle of the preservative to be a highly chlorinated naphthalene.—A.S.

GREGORY, R. P., JR., WISE, J. C. & SIKES, D. (1954). **Experimental production of bovine hyperkeratosis with a feed concentrate exposed to vapors of a highly chlorinated naphthalene.**—*J. Amer. vet. med. Ass.* **125**, 244-246. **762**

Foodstuffs (grain, meal, and hay) were placed for 3 months in the middle of the floor of an unventilated room, the wooden walls of which had been painted with a solution of octachloronaphthalene in lower chlorinated naphthalenes. A steer given this food developed hyperkeratosis after 22 days.—R.M.

LUKE, D. (1954). **Liver dystrophy associated with coal tar pitch poisoning in the pig.**—*Vet. Rec.* **66**, 643-645. **763**

A note on toxic degeneration of the liver in pigs as a result of eating coal tar pitch from a floor, and in pigs which had been fed pitch.

—R.M.

I. COOK, L. J. (1953). **The story of *Phalaris tuberosa* in South Australia.**—*J. Dep. Agric. S. Aust.* **56**, 431-433. **764**

II. SMITH, W. S. (1953). *Phalaris staggers in South Australia. I. Its distribution.*—*Ibid.* 434. 765

III. SYMONS, L. E. A. (1953). *Phalaris staggers in South Australia. II. A description of two particular outbreaks.*—*Ibid.* 435-436. 766

IV. SMITH, W. S. (1953). *Phalaris staggers in South Australia. III. The symptoms of phalaris staggers and its differential diagnosis.*—*Ibid.* 436-437. 767

V. LEE, H. J. (1953). *The course of the disease. [Phalaris staggers.]*—*Ibid.* 437. 768

VI. LEE, H. J. & KUCHEL, R. E. (1953). *Phalaris tuberosa and phalaris staggers in sheep and cattle. Investigational work on phalaris staggers in sheep.*—*Ibid.* 493-495. Discussion: pp. 495-498. 769

I. C. dealt with the history and distribution of *P. tuberosa* in South Australia, and its merits and demerits as a pasture grass.

II. S. mapped and commented on the distribution of phalaris staggers in sheep and cattle in South Australia.

III. S. described two outbreaks which occurred on newly developed country. Both sheep and cattle were affected. In cattle mild symptoms of hock stiffness and toe-dragging were observed and one beast showed symptoms similar to those in sheep.

IV. Symptoms occur two to three weeks after sheep have access to new growth of the plant which appears after rain in autumn or early winter. Sheep of all ages may be affected, 10 to 30% or more of the flock. The number of animals affected and the severity of the symptoms vary from day to day. An early symptom is a "proppy" gait, with inability to bend the hock causing the hind leg to drag. This is followed by incoordination of the limbs and swaying of the hindquarters. Advanced symptoms are recumbency, with paddling movements of the limbs, twitching of the whole body, nodding of the head and irregular movements of the eyeballs. Rapid respiration may be accompanied by an audible heart beat. The sheep may die at this stage but if left alone may recover and walk away apparently little

See also absts. 801 (chemical agents and poisonous metals in food and water); 840-841 (reports, Australia).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

GLÄTTLI, H. R. (1954). *Zur Bluttransfusion in der Veterinärmedizin. [Blood transfusion in veterinary medicine.]*—*Schweiz. Arch. Tierheilk.* 96, 364-374. [English, French and Italian summaries.] 772

Blood transfusion in severe blood loss is

affected. Some sheep make an apparent recovery but symptoms can usually be elicited by forced exercise. Even if only slight symptoms are observed before the sheep are moved to new unaffected pasture the condition progresses.

In rye grass staggers death is unusual except by misadventure and although the symptoms are similar to those of phalaris staggers they are less severe.

V. Of 11 Merino ewes which were affected five died within 13 weeks of the onset of severe symptoms. The severity of symptoms of the last survivor fluctuated markedly. Four of 6 mild cases survived but symptoms recurred periodically.

VI. Prevention of phalaris staggers in sheep is possible by the frequent administration of cobalt. It is suggested that a lowered vitamin B₁₂ status in the sheep causes inadequate detoxication of a neurotoxin in the phalaris grass.—D. C. BLOOD.

JEGANATHAN, P. (1953). *Toxic effects of feeding Indigofera endecaphylla (Jacq) to calves.*—*Ceylon vet. J.* 1, 83-85. [Abst. from author's summary.] 770

The legume, *Indigofera endecaphylla* was toxic to calves when fed in large quantities. Calves, aged 6 months, fed for two weeks with 10 lb. of this legume and 20 lb. grass daily, lost body weight, the output of indican was increased and albumin was present in the urine. There was early damage to the liver and kidneys.

TAARNING, F. (1954). *Penicillinforgiftning hos smågrise. [Penicillin poisoning in young pigs.]*—*Medlemsbl. danske Dyrlaegeforen.* 37, 363. 771

A note on toxic symptoms which occurred in piglets ranging in age from a few days to 5-6 weeks and in a 4-month-old pig, about 2 hours after the injection of procaine penicillin. They included prostration, greyness of the skin, inappetence, vomiting and severe diarrhoea.

—F.E.W.

superior to all haemostatic agents and may save life. G. recommended its use for valuable dogs involved in traffic accidents, and in infectious diseases. He described the technique used and results, based on two years' experience.

—W. R. BETT.

WRÓBLEWSKI, A. (1954). Metoda knoserwowania osocza przystosowana do celów praktyki weterynaryjnej. [A plasma preservation method suitable for veterinary practice.]—*Méd. vét. Varsovie*, **10**, 284-287. [In Polish.] 773

The blood is collected into a solution of sodium citrate, glucose, hydrochloric acid and "rivanol" (ethoxy diaminoacridine lactate) and the separated plasma is stored for 6-8 months. W. stated that the blood corpuscles, after separation, can be used for "tissue therapy", being administered subcutaneously.

—J. R. MITCHELL.

OLIVO, R. (1953). La flora microbica intestinale del coniglio in trattamento aureomicinico. [The bacterial flora of the intestine of rabbits treated with aureomycin.]—*Boll. Soc. ital. Biol. sper.* **29**, 1032-1034. 774

The author examined the faeces of 5 rabbits before and after the administration to each of 40 mg./kg. aureomycin for 4 consecutive days. After treatment the number of aerobic organisms in the faeces was about the same in 2 rabbits and was reduced by one half in the remainder. The number of anaerobic organisms was reduced by 90%. The number of organisms which grew on culture media containing 500 µg. aureomycin per ml. was trebled.

—R. M.

JOHNSON, L. E. & FERGUSON, L. C. (1954). Chymotrypsin treatment of chronic infections in animals.—*Vet. Med.* **49**, 265-270 & 297. 775

The authors treated 7 selected suppurative conditions with a grave prognosis in horses and cattle by surgical measures, supplemented by the local application of chymotrypsin, a purified proteolytic enzyme prepared from mammalian pancreas. The enzyme "digested" dead tissue and brought about rapid drainage. They considered this treatment superior to others available.—F. L. M. DAWSON.

DAVIDSON, J. L. (1954). A preliminary report on the use of hydrocortisone and hydrocor-

tisone with neomycin in dogs and cats.—*Vet. Med.* **49**, 286-288. 776

Ointments containing 0.5% neomycin sulphate with either 1% or 2.5% hydrocortisone, applied once daily, were used in the treatment of obstinate otitis externa, eczema, and keratoconjunctivitis in dogs and cats, with dramatically successful results.—F. L. M. DAWSON.

FIELD, E. J. (1954). Effect of cortisone on the neonatal rat. [Correspondence.]—*Nature, Lond.* **174**, 182. 777

New-born rats given 5 mg. cortisone daily frequently died at about the 10th day, showing signs of pituitary failure, including exophthalmos.—F. L. M. DAWSON.

GEILL, T., LUND, E., DAM, H. & SØNDERGAARD, E. (1954). Studies on the efficiency of vitamin K₁ in small doses as antidote against anticoagulants of the dicoumarol type.—*Scand. J. clin. Lab. Invest.* **6**, 203-209. [In English.] [Authors' summary modified.] 778

The authors recommended the use of a sterile aqueous colloidal solution of vitamin K₁, given intravenously, as a means of raising the proconvertin-prothrombin value in cases where treatment with dicoumarol anticoagulants had resulted in serious haemorrhage. In this way a therapeutic effect was obtained within 2 hours, whereas after oral administration it developed more slowly. Treatment with menadione and its simpler derivatives was considered to be of no value because of the low and uncertain efficiency of these compounds in counteracting the hypoprothrombinaemia caused by dicoumarol anticoagulants.

WALKER, G. W. (1954). A polarographic method for the determination of the gamma isomer of benzene hexachloride in cattle dips. [Correspondence.]—*Nature, Lond.* **174**, 44-45. 779

An account of a polarographic method for the determination of the γ-isomer of benzene hexachloride, applicable to the routine examination of large numbers of samples of cattle dips.

—F. L. M. DAWSON.

See also absts. 562 (protective use of penicillin in experimental Str. agalactiae infection of the bovine udder); 573 (effect of streptomycin on tubercle bacilli); 578-581 (isoniazid); 595 (terramycin in calf scours); 622 (fungal diseases); 631 (anisomycin); 632 (effect of antibiotics on Tr. vaginalis in vitro); 633 (sulphaquinoxaline); 635 (cortisone); 636 (piroplasmiasis); 644 (optimum concentration of chloramphenicol in F. & M. disease virus culture); 677 (effect of carbomycin [magnamycin] on bluetongue virus); 684 (A.C.T.H. and cortisone in distemper); 701, 703, 704, 707 & 709 (insecticides); 715 (hetrazan); 716 (hetrazan, anthiomaline and foudadin); 723 (effect of selenium, arsenicals and B₁₂ on chick growth); 725-727 (antibiotics in poultry rations); 771 (penicillin poisoning in pigs); 808 (effect of antibiotics on bull semen fertility); 834 (radioactive isotopes); 836 (assay of penicillin in animal feeds); 855 (book, quantitative pharmaceutical chemistry); 857 (book, isotopic tracers).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

PATCHELL, M. R. (1954). **Direct effects of climate on cattle. I. Some observations on the skin temperature, body temperature, respiration rate and pulse rate of dairy stock under normal temperature conditions. II. Measurements of skin temperature in cattle. III. The diurnal trend in body temperature, respiration rate and pulse rate.**—*N. Z. J. Sci. Tech.* Sect. A, **36**, 1-9; 10-14 & 93-102. [Author's summaries modified.] **780**

I. Six pairs of identical twin heifers were used to study the variation in skin temp., body temp., respiration rate and pulse rate over an air temp. range of 36 to 67°F. Observations were made on 3 days per fortnight for 3 months in the late autumn. Four sets of readings were made on the group of animals each day. The results were analysed statistically.

The only direct effect of climate observed was on respiration rate and skin temp. Members of a set of twins tend to have characteristic respiration and pulse rates and it was evident that hot conditions caused the respiration rate to increase in all animals. Skin temp. did not differ significantly from animal to animal, but hot sunny conditions caused a rise in skin temp. The body temp. of pregnant heifers differed from animal to animal, possibly as a result of pregnancy. Day-to-day variations in pulse rate may also have been due to the effect of pregnancy.

II. P. described the use of different thermocouples in measuring the skin temp. of cattle. By leaving the hair on and sliding the thermocouple under it better results were obtained than by clipping or shaving the hair. Skin temp. varied widely over the body, being lowest on the extremities.

III. Three pairs of monozygotic twin Jersey heifers were housed indoors for seven 24-hr. periods. The results in the form of analyses of variance and graphs demonstrated that there was a distinct diurnal trend in body temp. and pulse rate.

LYNN, R. B., MELROSE, D. G., CHURCHILL-DAVIDSON, H. C. & McMILLAN, I. K. R. (1954). **Hypothermia: further observations on surface cooling.**—*Ann. R. Coll. Surg. Engl.* **14**, 267-275. [Authors' summary modified.] **781**

Surface cooling was used to lower the body temp. of dogs to the point of death, whilst oxygen consumption was estimated and attempts to prevent and to treat ventricular fibrillation were applied. The oxygen consumption fell in

a linear fashion down to 14°C. and would, by extrapolation, be zero at about 10°C. No method was found to prevent ventricular fibrillation or cardiac standstill. Once these had developed they were permanently irreversible at body temp. below 22°C. The best method of delaying the onset of cardiac irregularities and death was the use of controlled respiration. In the light of present knowledge the authors concluded that deep hypothermia was not yet applicable to man.

WYNN, V. (1954). **Electrolyte disturbances associated with failure to metabolise glucose during hypothermia.**—*Lancet*, **267**, 575-578. [Author's summary slightly modified.] **782**

During induced hypothermia in man and dogs exogenous glucose is metabolised slowly. If glucose is given, hyperglycaemia develops and the plasma-sodium and plasma-total-protein levels fall. The levels of other electrolytes in the plasma may also fall. This effect is due to dilution of the extracellular fluid (E.C.F.) by water. The increased water-content of the E.C.F. is due to the osmotic effect of glucose which, if water is given, retains it in the E.C.F. or, if no water is given, withdraws it from the cells.

To avoid these changes glucose intake should be restricted during hypothermia. The interpretation of low plasma-Na and plasma-total-protein levels may be uncertain unless the plasma glucose level is known.

CARTER, H. B. & DOWLING, D. F. (1954). **The hair follicle and apocrine gland population of cattle skin.**—*Aust. J. agric. Res.* **5**, 745-754. **783**

Skin samples were collected from 321 individual beef and dairy cattle of known age or in defined age groups, and from 30 beef Shorthorn cattle sampled on 7 occasions from birth to the age of 30 months. The authors described skin biopsy and histological methods suitable for cattle and gave some preliminary results in estimating the population density of hair follicles and apocrine glands in the skin of various domestic breeds. The Jersey appeared to have the most dense coat. Age and nutritional status of the animal affected the hair follicle population density.—A. G. LYNE.

FRASER, A. S. (1954). **Development of the skin follicle population in Merino sheep.**—*Aust. J. agric. Res.* **5**, 737-744. [Author's summary slightly modified.] **784**

Skin samples were taken from lambs at intervals from birth to several months of age, and

counts made of the ratio of secondary to primary follicles. This ratio, which was of the order of 2-4 at birth, increased to about 13-18 by 30-40 days after birth and then increased slowly to the mature value of 18-24 over several months.

BILLINGHAM, R. E. & MEDAWAR, P. B. (1953). **A study of the branched cells of the mammalian epidermis with special reference to the fate of their division products.**—*Phil. Trans. Ser. B*, **237**, 151-171. **785**

There are two classes of branched cells in the mammalian epidermis, situated in the basal and superficial layers respectively. The former comprise 4 types of melanocytes, and the latter comprise cells which, the authors concluded, represent effete melanocytes which, having discharged or otherwise lost their pigment, participate in the general outward movement of epidermal cells, to be cast off at the skin surface.

—R.M.

RINGLER, I., BECKER, N. & NELSON, W. L. (1954). **Coenzyme A and diphosphopyridine nucleotide in guinea pig mammary tissue.**—*Arch. Biochem.* **52**, 348-352. [Authors' summary modified.] **786**

The authors determined the concentration of co-enzyme A and diphosphopyridine nucleotide (DPN) in the mammary glands of g. pigs during gestation, lactation and involution. DPN remained relatively constant throughout growth and lactation, while the co-enzyme A content was lowest during the period of growth and highest following parturition. The intracellular distribution of the two substances in lactating and non-lactating mammary gland tissue was similar, the highest conc. being found in the supernatant fraction.

SHAFFHAUSEN, D. D., JORDAN, R. M. & DRACY, A. E. (1954). **The effect of relaxin upon milk ejection. I. The let-down effect upon sheep.**—*J. Dairy Sci.* **37**, 1173-1175. [Authors' summary modified.] **787**

Ten sheep were hand-milked 12 hours after their lambs had been removed, to determine normal let-down of milk, the effect of 500 g.-pig units of relaxin on let-down, and the use of 10 I.U. of oxytocin to evacuate the gland. On an average, 39.1% of the total milk produced was obtained by hand milking; an additional 43.5% of the total milk produced was obtained after the relaxin was injected intravenously; and 17.4% of the total milk produced was obtained by the i/v injection of 10 I.U. of oxytocin.

BUNCE, S. A. (1954). **Observations on the blood sedimentation rate and the packed cell vol-**

ume of some domestic farm animals.—*Brit. vet. J.* **110**, 322-328. [Author's summary modified.] **788**

B. described variations which occurred in the blood sedimentation rate of domestic farm animals. Sedimentation was slow with cattle, sheep and goats, and readings could not be taken until after 24 hours. The rate was much quicker in pigs, and readings could be taken at the end of the 8th hour. It was extremely fast in horses, and recordings should be taken during the first 30 min. He also described the changes which took place in the packed cell volume when blood from various animals was centrifuged for different periods of time and at varying revolutions per min.

WEHMEYER, P. (1954). **Variation in the composition of the blood in cows during thirst, after intake of water and on hungering.**—*Acta path. microbiol. scand.* **34**, 518-520. [In English.] **789**

W. demonstrated an increase in the serum albumin concentration and the cell volume of the blood of 10 cows which had been deprived of water for 3 days. Thirty min. to 2 hours after the intake of water, there was a marked fall in the serum albumin conc. and a rise in the globulin conc. In all the cows, a fall in serum albumin was accompanied by a fall in cell volume. These changes were not observed when the cows were given water but no food for 2 days.—R.M.

COLLET, P. & PÉRÈS, G. (1954). **Calcémie et traumatisme opératoire. [Calcaemia and surgical trauma.]**—*Bull. Soc. Sci. vét. Lyon.* **56**, 31-36. Discussion: pp. 36-37. **790**

In 7 horses, trauma resulting from castration or cautery performed without anaesthesia was associated with a slight decrease in the conc. of calcium in the blood. When anaesthesia was used during similar operations in 8 other horses, the calcium conc. did not decrease. [The results were not wholly consistent.]

—A. SEAMAN.

RESTANI, R. & TOMMESANI, G. (1954). **Su di un fascio di Leonardo pluriramificato in *Bos taurus*. [A moderator band in the heart of the ox.]**—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo*, 1953. **7**, pp. 464-467. [English and French summaries.] **791**

The authors described unusual branching of the moderator band of [presumably] the left ventricle of one out of 600 hearts of cattle examined. They traced three tracts of Purkinje fibres within some of the ramifications of the moderator band.—R.M.

I. ROSATI, P. (1953). La istogenesi e lo sviluppo dei dispositivi di blocco delle arterie e delle vene del polmone di *Bubalus bubalus*. [Embryology of the arteries and veins of the lungs of the buffalo (*Bubalus bubalis*).—*Bol. Soc. ital. Biol. sper.* **29**, 1189-1191. 792

II. ROSATI, P. (1953). Sulla istogenesi del polmone. I. Sviluppo delle fibre elastiche e delle cellule muscolari nel polmone embrionale e fetale di *Bubalus bubalus*. [Histogenesis of the lungs. I. Development of elastic fibres and muscle cells in the embryonal and foetal lungs of the buffalo, *Bubalus bubalis*.]—*Ibid.* 1187-1189. 793

I. In domestic buffalo fetuses aged 8 months and in new-born buffaloes up to the age of one year, sphincter-like structures were present in almost half of the branches of the pulmonary arteries. Annular structures in the intima of the pulmonary veins, described as "cushions", which are normally present in adult buffaloes, were absent in fetuses.

II. Elastic fibres appeared in the blood vessels and larger bronchi of the domestic buffalo foetus at the age of 2 months. At 8 months they were present in the septa and in all the bronchi and bronchioli. Elastic fibres were not seen in the walls of the alveoli until the 9th month.

In 2-month-old fetuses muscle fibres were only present in the bronchial muscles of the larger bronchi.—R.M.

JOHNSON, F. R. & KUGLER, J. H. (1953). The distribution of alkaline phosphatase in the mucosal cells of the small intestine of the rat, cat and dog.—*J. Anat., Lond.* **87**, 247-256. 794

The authors confirmed the distribution of alkaline phosphatase in two layers in the mucosal cells of the small intestine of the rat, the cat and the dog, using a modification of the Gomori technique. They studied the effect of varying different steps in the technique. They discussed the findings in relation to the process of phosphorylation.—R. N. SMITH.

ERCOLI, A., DI FRISCO, S. & DE RUGGIERI, P. (1953). Isolamento, costituzione e significato biologico del cerebrosterolo, un accompagnatore del colesterolo nel cervello equino.

[Isolation, composition, and biological significance of cerebrosterol, a cholesterol-like substance in the brain of the horse.]—*Bol. Soc. ital. Biol. sper.* **29**, 494-497. 795

The authors described the chemistry of a sterol isolated from extracts of horse brain, having the empirical formula $C_{27}H_{46}O_2$, to which they gave the name cerebrosterol. This substance was not found in extracts of ox or pig brain.—R.M.

WILSON, A. A. (1953). The use of ethylene diamine tetra-acetate (EDTA) in the determination of calcium and magnesium in urine.—*J. comp. Path.* **63**, 294-299. 796

An account of a technique for the quantitative analysis of calcium and magnesium in urine, using ethylene diamine tetra-acetate.

—F. R. PAULSEN.

MUKHERJEE, D. P. & BHATTACHARYA, P. (1953). Seasonal variations in semen quality, and haemoglobin and cell volume contents of the blood in bulls.—*Indian J. Vet. Sci.* **22**, 73-91. 797

In 6 healthy Kumauni hill bulls kept under observation at Izatnagar for 2 years the haemoglobin content and packed cell volume of the blood and the concentration of spermatozoa in the semen were significantly higher in spring (Feb.-Apr.) and lower in autumn (August-Oct.).—R. N. MOHAN.

CRESSERI, A. (1954). Osservazioni sulle caratteristiche biologiche e chimiche di frazioni mucoproteiche ottenute dalla mucosa gastrica di maiale. [Biological and chemical properties of mucoprotein fractions of the gastric mucosa of pigs.]—*Bol. Soc. ital. Biol. sper.* **30**, 718-720. 798

In preparations of gastric mucosa of the pig the authors concluded that there was only one component endowed with the property to combine with vitamin B_{12} . The separation of this substance by electrophoretic means was impossible owing to the presence of similar compounds which did not have the combining property. Such components (A and H substances) could be separated by alcoholic precipitation of fractions soluble in 90% alcohol.

—R.M.

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

STEELE, J. H. (1953). The relation of milk sanitation to communicable disease control and public health. — *Proc. XVth Int. vet. Congr., Stockholm*. 1953. Part II. 48-59. [In English.] 799

S. discussed the spread from cattle to human beings, *via* the milk, of such diseases as TB., brucellosis, and Q fever, giving figures for the incidence of these diseases in the U.S.A. He also discussed pasteurization and good

dairy hygiene as means of preventing the spread of these diseases.—R.M.

BROE, H. (1954). Om elektrisk bedøvning af svin. [Electrical stunning of slaughter pigs.]—*Medlemsbl. danske Dyrægeforen.* **37**, 457-459. **800**

On account of complaints concerning fractures, and haemorrhage in the musculature, of slaughtered pigs that had been stunned by the electrical method, B. carried out large-scale tests of this method. He found that the degree of haemorrhage in the musculature is correlated with the degree of haemorrhage in the lungs and that, where the latter is absent or only slight punctiform haemorrhages are present, the musculature elsewhere in the carcass will be free from haemorrhage. In pigs of bacon weight the best results were obtained using alternating current with 60 volts and an amperage of 0.4-0.5 for 5-6 sec., the optimal position for the placing of the electrodes being at the root of one ear and just above the eye on the opposite side. As it may take 1-3 sec. before this amperage is registered on the ammeter the tongs must be held in position for at least 8 sec. Instructions issued to abattoirs in Feb. 1954 had stated that the stunning time must be 4-7 sec. B. pointed out that this is too wide a margin, and that increasing the voltage to 70 for bacon pigs produces such a violent reaction that it might cause fracture of the scapula and spinal column. He recommended the use of an electric bulb to light up when the required amperage had been maintained for 5 sec. With larger pigs, sows and boars a stunning time of 8 sec. with 70 volts gave the best results.

When stunning was carried out on these lines fracture of limb bones and scapulae did not occur and insignificant fractures of the spinal column were very rare and the carcass obtained satisfactory grading at inspection, there being only a 5-10% rejection of lungs on account of haemorrhage.—F.E.W.

REPRODUCTION AND REPRODUCTIVE DISORDERS

DZIUK, P. J., GRAHAM, E. F. & PETERSEN, W. E. (1954). The technique of electroejaculation and its use in dairy bulls.—*J. Dairy Sci.* **37**, 1035-1041. [Authors' summary and conclusions modified.] **804**

It was possible by electrical stimulus applied *per rectum* to collect semen from some bulls either unable or unwilling to serve an artificial vagina. There were no adverse effects or unfavourable associations in bulls subjected

TYLER, A. (1954). Chemical agents and poisonous metals in food and water.—*R. sanit. Inst. J.* **74**, 985-992. Discussion: pp. 993-994. [Author's summary modified.] **801**

T. drew attention to the ever increasing range of foodstuffs to which chemicals may be added or in which poisonous metals may be present, and the contamination of foodstuffs exposed to modern insecticides and rodenticides, many of which are toxic to man in quite small quantities. He also mentioned the difficulties met with in practice in an attempt to ascertain whether permissible limits of such substances have not been exceeded, and made suggestions with a view to the subject of chemicals, etc., in food being kept under constant investigation by the appropriate government departments.

WARDLE, R. N. (1953). Animal quarantine stations in Australia.—*Health, Canberra.* **3**, 44-46. **802**

A brief description of the facilities and types of animals handled at each of the Australian quarantine stations.—R. I. SOMMERVILLE.

HRSTKA, A. (1954). O organisaci a činnosti veterinární služby v SSSR. [Veterinary services in the U.S.S.R.]—*Veterinářství, Brno.* **4**, 8-11. **803**

Supervision of the veterinary services in the U.S.S.R. is carried out by the Veterinary Department of the Animal Production Service (Ministry of Agriculture). There are 5 divisions; (a) Communicable diseases; (b) Clinical activities; (c) Food inspection; (d) Transportation of animals and animal products; (e) Statistics and planning. Vaccines and sera are produced in government-owned laboratories, under the supervision of veterinary inspectors. The lowest grade local veterinary unit is usually served by a "Feldscher" (a graduate of a veterinary school with a relatively elementary curriculum). Veterinary hospitals are available in all areas.—I. MARTINI.

to this treatment. The semen so obtained was generally of greater volume but of lower density than normal. However, the total numbers of spermatozoa were comparable to an ejaculate obtained by an artificial vagina.

BONADONNA, T. (1954). Sul contenuto in fruttosio nello sperma di ariete e di toro ottenuto per elettroeiaculazione. [The fructose content of bull and ram semen obtained by elec-

tro-ejaculation.]—*Zootec. e Vet.* 9, 182-187. [English conclusions.] 805

Somewhat less semen is obtained by electro-ejaculation than with the artificial vagina. The percentage of active spermatozoa is normal, but the fructose content is about 50% subnormal. B. suggested that stimulation of the vesiculæ seminales, from which most of the fructose comes, occurs when an artificial vagina is used, but not with the electro-ejaculation technique.—R. MACGREGOR.

PRA BHU, S. S. & BHATTACHARYA, P. (1954). Influence of factors affecting sex drive on semen production of buffaloes. I. Physiological state of the 'teaser' cow.—*Indian J. vet. Sci.* 24, 35-50. 806

The authors investigated the effect of short-term stimuli, in the form of a teaser cow in oestrus, on the reaction time and semen production of 18 buffalo bulls (*B. bubalis*). They concluded that a teaser cow could be usefully introduced to provide additional sexual stimulation for the bulls when used for the collection of semen.—R.M.

FLIPSE, R. J., PATTON, S. & ALMQUIST, J. O. (1954). Diluters for bovine semen. III. Effect of lactenin and of lactoperoxidase upon spermatozoan livability.—*J. Dairy Sci.* 37, 1205-1211. [Authors' summary modified. For previous parts, see *V.B.* 24, 601 & 2928.] 807

The authors concentrated lactenin, an anti-streptococcal substance of milk, by acetone fractionation of whey, and demonstrated that it was highly toxic to bovine spermatozoa. Lactenin prepared by tryptic digestion of whey, dialysis, and alcoholic precipitation was also toxic to spermatozoa, but the results were partially obscured by the difficulty of separating trypsin from the lactenin. Lactoperoxidase, when added to heated skim-milk and used as a semen diluent in a storage trial, exhibited no toxicity for bovine spermatozoa at the conc. used.

ROTTENSTEN, K. & ØSTERGAARD, P. S. (1953). Forsøg med tilsaetning af penicillin og streptomycin til fortyndingsvaedsken. Statistisk undersøgelse af resultaternes sikkerhed. [Effect on fertility of addition of penicillin and of streptomycin to semen of bulls.]—*Beretn. forsøgslab. Kbh.* No. 265. pp. 30. [In Danish. English summary.] 808

Both penicillin and streptomycin, when added to a diluent for bovine semen, consisting of citrate, glucose, gelatin and sulphanilamide, produced an increase of fertility. Streptomycin was the more effective; in one experiment peni-

cillin had no effect. The addition of penicillin to the semen of bulls with a conception rate to first insemination of more than 50% did not significantly increase fertility, while streptomycin did. Addition of penicillin or streptomycin to the semen of bulls with less than 50% conceptions to first insemination markedly improved conception rates. The semen of one bull of low fertility was unaffected by both antibiotics. Addition of both penicillin and streptomycin was no more effective than streptomycin alone. The results were all statistically analysed.—R. B. HOLCOMBE.

GROOTENHUIS, G. (1954). De diepvriesmethode voor spermatbewaring als toekomstig hulpmiddel ter verbetering van de resultaten bij K.I. [The deep freezing method for the storage of semen and its use for the improvement of results from artificial insemination.]—*Tijdschr. Diergeneesk.* 79, 529-534. [English, French and German summaries.] 809

G. described work done by other authors on the deep-freezing of bull semen, and discussed future applications of this method of storage.—C. A. VAN DORSEN.

MIXNER, J. P. & SAROFF, J. (1954). Interference by glycerol with differential staining of bull spermatozoa as used with semen thawed from the frozen state.—*J. Dairy Sci.* 37, 1094-1098. 810

The authors studied the viability of spermatozoa in semen which had been frozen by estimating the motility and by estimating the proportion of live spermatozoa by differential staining. Three different semen diluents were used, containing from 2.5 to 12.5% glycerol. When the glycerol content exceeded 4%, the proportion of live spermatozoa bore no relation to the motility. They suggested that the glycerol had increased the permeability of the motile spermatozoa to stains, so that some of them were counted as dead when examined by the differential staining procedure. Determination of the motility therefore gave a more reliable measurement of viability, when glycerol was used in the diluent, than differential staining.—R.M.

BINELLO, D. (1954). Ricerche sulla durata della mobilità ed attività dello sperma bovino a contatto con il muco da calore della stessa specie. [Motility and fertility of bull spermatozoa in oestral mucus.]—*Gazz. Vet., Milan.* No. 1, pp. 6-12. 811

Mucus samples were examined from 320 cows of various ages, taken 4-36 hours from onset of heat; 173 normal animals 21 function-

ally infertile, 17 with genital infection, and 12 systemically ill were included. The frequency curves both for cows conceiving to first service, and overall, showed a first peak of duration of sperm motility at 5 min., dropping to a dip at 20 min, and again rising to a lower peak at one hour, beyond which interval the reaction was not followed. This second peak was not seen in samples from the three "pathological" groups. In some cases, however, normal pregnancy ensued, though in the experiment the sample of mucus appeared to "kill" the sperm at once. The reverse of this effect was also noted. The response to semen viability test could not be correlated with stage of oestrous cycle. It was impossible to deduce any real relationship between the likelihood of pregnancy and the length of sperm survival in mucus.—F. L. M. DAWSON.

LEWIS, E. F. (1954). The use of the Cuboni test for evidence of pregnancy in mares and sows.—*Vet. Rec.* 66, 511. [Author's summary slightly modified.] 812

The accuracy of the Cuboni test for pregnancy in the mare was sufficiently high to warrant its use as an aid to clinical diagnosis. The degree of inaccuracy of the test in the case of pigs was, however, too high to warrant its use as a routine test.

CHOUDHURI, A. C. & PRASAD, R. B. (1954). A study of the reaction of the vaginal secretion in cows and heifers.—*Indian J. vet. Sci.* 24, 81-87. [Authors' summary modified.] 813

The pH of vaginal washings from 135 normal cows varied from 6.0 to 8.5, with an average of 6.5-7.0 in the majority of the animals. Age and stage of lactation did not appear to have any effect on pH. There was a tendency for the pH values to be slightly below 7.0 from the fourth month of pregnancy onwards. The range in heifers was between 6.0 and 7.0. During oestrus the pH was nearer 7.0. No abnormality in the pH values could be found in cows taking 3 or more services before conceiving.

HADEK, R. (1954). A contribution to the early embryology of the sheep. An attempt to correlate the developmental stage of the descending ovum with the place of recovery.—*Vet. Rec.* 66, 632-635. [Author's summary modified.] 814

An account of 81 ova recovered from the genital tract of slaughtered sheep. H. described ova without a perivitelline space and concluded that this appearance was characteristic of the recently ovulated egg. The perivitelline space increased in size as the ovum developed. Eight-

and 14-cell stages contained cells which may have been polar bodies. Some pathological ova were also encountered.

MACFARLANE, J. C. & NORMAN, A. P. (1954). Serum antithrombin content in pregnancy.—*Brit. med. J.* Sept. 4th, 573-574. [Authors' summary modified.] 815

In 120 cases of pregnancy [human], varying from four weeks' duration to full term, the serum antithrombin level in every case has been found to be much lower than that of normal serum. Examination of 41 sera obtained *post partum* revealed that the titre remains low for at least 4 weeks but returns to normal some time between 5 and 12 weeks after delivery.

The authors suggested that the test may be useful as aid to the diagnosis of pregnancy in certain obstetric problems.

FOSGATE, O. T. & SMITH, V. R. (1954). Prenatal mortality in the bovine between pregnancy diagnosis at 34-50 days post-insemination and parturition.—*J. Dairy Sci.* 37, 1071-1073. [Authors' summary modified.] 816

Prenatal mortality was observed in the foetuses of 44 out of 690 cows that were diagnosed pregnant at 34-50 days after insemination.

MCWILLIAMS, J. (1954). The prevention and treatment of sepsis in the bovine uterus with bis-parachlorophenyldiguanido-hexane. — *Vet. Rec.* 66, 635-638. 817

The author described the use of a new compound 1:6-di-4'-chlorophenyldiguanido-hexane in preventing and treating uterine sepsis in over 360 cows. The drug was administered in the form of pessaries [composition not stated] or as a solution of pessaries in water. Many of the cows were also given an intramuscular injection of 20-30 mg. stilboestrol. The results indicated an improved control of infection over that obtained by the administration of penicillin and sulphonamides, or by irrigation with iodine.—R.M.

ROBINSON, T. J. (1954). Fertility of anoestrous ewes following injection of progesterone and pregnant mare serum (PMS). — *Aust. J. agric. Res.* 5, 730-736. [Author's summary modified.] 818

R. described experiments in which progesterone was administered alone and in combination with pregnant mare serum to anoestrous Suffolk, Suffolk crossbred, and Romney Marsh ewes. While oestrus, presumably with ovulation, was induced in a high proportion of ewes treated with the two hormones in combination, lambing percentages were low. Of 20 Romney

ewes treated, 18 were served, but only 5 became pregnant. Comparable figures for Suffolk ewes were: 20 treated, 18 served, 7 lambed. The crossbred ewes gave better results; of 6 ewes treated all were served and 5 lambed. There was some evidence that the conception rate was higher following a complete ovarian cycle. R. discussed factors which may be involved in this phenomenon.

ROBINSON, T. J. (1954). **The necessity for progesterone with estrogen for the induction of recurrent estrus in the ovariectomized ewe.**—*Endocrinology*. **55**, 403-408. [Author's summary modified.] **819**

Repeated injections of 2-5 mg. oestradiol benzoate at 7 and 14 day intervals produced a refractory condition in 12 ovariectomized ewes (of which 6 were hysterectomized), in that few continued to exhibit normal oestrous behaviour. Some animals exhibited male-like mounting behaviour. Progesterone (75 mg. in 6 twice daily injections) removed this condition and all ewes were served following oestrogen injection 2 days later. The dose of oestrogen was reduced successively by one-fifth from 5 mg. to 8 μ g. and then raised to 20 μ g. Three successive injections were given at each level, at 14-day intervals. At no level of dosage could recurrent oestrus be induced unless progesterone preceded oestrogen, in which case 40 μ g. approached the level for maximum response, 20 μ g. was marginal, and 8 μ g. ineffective. Progesterone pre-treatment advanced the time of onset of oestrus by 12 to 24 hours. Hysterectomy had no effect on the responses observed. R. concluded that alternate progesterone-oestrogen influence was necessary for regular cyclic oestrous behaviour in the ewe.

BIGGERS, J. D. (1953). **The carbohydrate components of the vagina of the normal and ovariectomized mouse during oestrogenic stimulation.**—*J. Anat., Lond.* **87**, 327-336. **820**

The vaginal mucin of mice is a mucopolysaccharide. It is non-lipoidal and is resistant to salivary amylase, diastase and strong pepsin solutions. The material appears during cornification, and keratinization takes place in the flattened cells which lie immediately below the mucified layer. Keratinization appears to be an active anabolic process.—J. A. NICHOLSON.

BIGGERS, J. D., CLARINGBOLD, P. J. & EMMENS, C. W. (1954). **A study of the variation in response of ovariectomized mice to the intravaginal and subcutaneous administration of**

oestrogens.—*J. Endocrin.* **11**, 26-35. [Authors' summary slightly modified.] **821**

From the results of two successive intravaginal tests with oestrone, mice were classified into groups having different sensitivities. These groups were more homogeneous in their responses than the parent colony, and hence the slope of the within-group dose-response lines was increased. The slope of the within-group dose-response lines to oestradiol-3:17 β was also found to be increased.

The groups retained their homogeneity when tested by the intravaginal method over an experimental period of 3 months, but when tested by the subcutaneous method, there were no significant differences between them.

Mice were also classified by using the subcutaneous route of administration with the same results as above. When they were tested by the intravaginal method, no significant differences were found between them.

The authors discussed the significance of these findings to the study of the action of oestrogens.

COWIE, A. T. & FLUX, D. S. (1954). **The rate of absorption of steroids and synthetic oestrogens from subcutaneously implanted tablets.**—*J. Endocrin.* **11**, 255-260. [Abst. from authors' summary.] **822**

The authors presented data on the rates of absorption of a number of steroid compounds and synthetic oestrogens from subcutaneously implanted tablets in mice, rats and cows; and compared their findings with those reported by other workers.

GILLESPIE, J. A. (1954). **The influence of sex hormones on the bony changes occurring in paralysed limbs.**—*J. Endocrin.* **11**, 66-70. [Author's summary copied *verbatim*.] **823**

Paralysis, produced in young male rats by avulsion of peripheral nerves, resulted in a highly significant reduction in total weight, ash weight, ash percentage, X-ray density and bending moment at the breaking point, of the bones of the affected limb. The breaking stress was significantly reduced, but Young's modulus of elasticity was unaltered.

Certain of these changes were modified by treatment with sex hormones. Both oestradiol and testosterone significantly reduced the difference between the bones of the normal and paralysed limbs in respect of total weight, ash weight and bending moment at the breaking point.

Treatment with oestradiol significantly increased both the ash percentage and Young's modulus of elasticity, the increase affecting

equally the bones of the normal and paralysed limbs. Testosterone treatment did not significantly affect either of these properties, and neither hormone affected the breaking stress.

PROCTOR, D. L., JR. (1954). **Sterility in mares.**—*Proc. 90th Ann. Meet. Amer. vet. med. Ass.* Toronto, July 20-23, 1953. pp. 409-412. 824

P. discussed various aspects of sterility in mares. Although the number of his cases was low, he stated that the introduction of 500 ml. physiological saline into the non-oestrous uterus was superior to the administration of oestrogens for the initiation of oestrus. Oestrus produced by this means was more likely to be of normal duration, and ovulation was more likely to occur, than when oestrogenic hormones were used.—R.M.

See also absts. 597 (role of the male in transmission of *S. abortus-ovis* infection); 600-606 (brucellosis); 611-615 (V. fetus infection); 616 (vaginal infection in cows with *F. necrophorus*); 626-632 (trichomoniasis); 673-674 (equine virus abortion); 678 (enzootic abortion of ewes); 728 (effect of steroids on ovine rumen function); 743 (ketosis-parturient paresis complex); 744 (parturient paresis); 792 (embryology of the lungs in buffaloes); 797 (seasonal variations in semen quality in bulls).

BHATTACHARYA, P., LUKTUK, S. N., RAO, A. S. P. & DE, S. K. (1954). **Incidence of infertility under various causal groups in buffalo cows in India.**—*Curr. Sci.* 23, 335-336. 825

An account of lesions found in the genital organs of 1,020 buffalo cows and heifers slaughtered at the Bareilly abattoir because of sterility. About 150 of the adult buffalo cows, however, were found to be pregnant 4-14 weeks. —E.G.

GIBBONS, W. J. (1954). **Some congenital conditions interfering with fertility in cattle.**—*Proc. 90th Ann. Meet. Amer. vet. med. Ass.* Toronto, July 20-23, 1953. pp. 399-401. 826

A brief account of persistence of the walls of Müller's ducts, freemartinism, and hypoplasia of the genital organs of cows and bulls. —R.M.

ZOOTECNHY

HANCOCK, J., BRUMBY, P. J. & TURNER, C. W. (1954). **Hormonal induction of lactation in identical-twin dairy cattle.**—*N. Z. J. Sci. Tech.* Sect. A. 36, 111-116. 827

The authors described the artificial induction of growth of the udder and lactation in 7 heifers. Growth of the udder was stimulated by the daily subcutaneous injection of diethylstilboestrol combined with progesterone, over a period of 5 months. The dosage of these hormones was 50 µg. diethylstilboestrol and 50 mg. progesterone during the first 2 months, 75 µg. and 75 mg., respectively, during the 3rd month, and 100 µg. and 100 mg., respectively, during the 4th and 5th months. Following this treatment, lactation was initiated by the daily administration of larger doses of stilboestrol alone during a period of 30 days, commencing with 2 mg. for the first 10 days, 4 mg. for the 10th-20th day, and 8 mg. for the 20th-30th day. The milk production of all except one of these heifers was much below that of normally calved untreated twins.—R.M.

ANDREWS, F. N., BEESON, W. M. & JOHNSON, F. D. (1954). **The effects of stilbestrol,**

dienestrol, testosterone and progesterone on the growth and fattening of beef steers.—*J. Anim. Sci.* 13, 99-107. 828

In three experiments involving a total of 120 beef steers, rate of gain and feed efficiency were consistently improved by the implantation of pellets of stilboestrol, stilboestrol with progesterone, and dienoestrol. Dressing percentage was not affected.—W. S. MARSHALL.

BURROUGHS, W., CULBERTSON, C. C., KAS-
TELIC, J., CHENG, E. & HALE, W. H. (1954). **The effects of trace amounts of diethylstilboestrol in rations of fattening steers.**—*Science.* 120, 66-67. 829

Trace amounts (not exceeding 10 mg. per day) for periods up to 84 days of diethylstilboestrol added to the feed of fattening steers increased the rate of live-wt. gain by 35% and reduced feeding costs by 20% as compared with controls without diminishing carcass grade. This method of administration is preferable to the implantation of pellets, being more readily controlled and less likely to endanger human health.—R. MACGREGOR.

TECHNIQUE AND APPARATUS

MURPHY, J. M. (1953). **An instrument and technique for the introduction of minute amounts of bacterial culture into the teat cavity of the bovine udder.** — *Cornell Vet.* 43, 279-289. 830

M. described a pipette design to permit the introduction of a minute volume (·0015 ml.) of a bacterial suspension into the teat canal without causing gross injury.—A.S.

ERIKSON, D. & MASSON, F. M. (1954). **Modifications of micromanipulative practice suitable for single cell isolation and cultivation of (a) aerobic and transiently chain-forming, (b) lipophilic and (c) microaerophilic bacteria.** — *J. gen. Microbiol.* 11, 209-217. [Authors' summary slightly modified.] 831

The methods described allowed successful cultivation of 60% of single cell isolations in the case of an aerobic, transiently chain-forming and polymorphous organism; 40% in the case of an organism of related morphology and similar viability, but presenting technical difficulties because of the lipophilic nature of the surface membranes; and approx. 2% in the case of a micro-aerophilic or anaerobic organism of restricted viability.

WELLENSIEK, U. (1954). **Vergleichende Untersuchungen mit der Helmintheneier-Zählkammer von Zschucke und der sogenannten McMaster-Zählkammer unter besonderer Berücksichtigung ihrer Anwendung im chemotherapeutischen Versuch.** [Comparison of the helminth-egg counting chamber described by Zschucke and the McMaster counting chamber, with special reference to their application to chemotherapeutic experiments.—*Z. Tropenmed. u. Parasit.* 5, 296-301. [English summary.] 832

For the purpose of counting worm eggs in order to assess the efficacy of anthelmintics, W. preferred the counting chamber described by Zschucke (1931) together with Teleman's concentration method to the McMaster counting chamber described by Gordon & Whitlock [*V.B.* 10, p. 217]. His material consisted of faeces from horses, cattle, cats, rabbits, and mice.

—R.M.

HILSON, G. R. F. & ELEK, S. D. (1954). **A nylon tissue grinder.**—*J. gen. Microbiol.* 11, 247-249. [Abst. from authors' summary.] 833

The authors described a tissue grinder consisting of a nylon pestle with a screw thread furrow cut in it and mounted on a stainless steel shaft and revolving within a glass tube.

The whole device was sealed with a rubber bung and could be sterilized by autoclaving. The pestle spindle is operated by a small electric motor revolving at 500 r.p.m.

WHITEHOUSE, W. J. & PUTMAN, J. L. (1953). **Radioactive isotopes. An introduction to their preparation, measurement and use.** pp. xii + 424. Oxford: Clarendon Press; (London: Geoffrey Cumberlege, Oxford University Press). 50s. 834

The authors, who are experienced Harwell scientists, claim that this book was written for the use of scientific workers who, while they may be experts in their own field of study, have no specialized knowledge of radioactive theory and technique. A general knowledge of elementary physics is the only qualification assumed. The result of their labours is an excellent book for the worker in the isotope field, but the reviewer wonders what level of physics may be termed elementary for the above statement. In order to derive full value from the text, a biologist will find it necessary to have a good basic knowledge of physics or mathematics.

The various chapters deal with the following matters:—Nuclear reactions applied to the production of artificial radioactive isotopes, modes of nuclear disintegration, properties of the radiations, production of radioactive isotopes, detection and measurement of the separate particles, gross effects of the radiations, some applications of radioactive isotopes, and the manipulation of radioactive material.

The book is well supplied with diagrams, is carefully written, and can be warmly recommended. It should give food for thought to those biologists who, fascinated by the techniques of using isotopes, gaily surround themselves with electronic impedimenta, and then look round for biological problems to solve using their new-found equipment.—D. S. PAPWORTH.

RUST, J. H., MONROE, R. A. & LOTZ, W. E. (1953). **Venoclysis by catheterization: some pathologic observations.** — *Cornell Vet.* 43, 193-198. 835

A clinical note on the formation of thrombi round needles and tubes used for i/v transfusion. R. described the dangers involved in the method.—A.S.

ESPOSITO, R. G. & WILLIAMS, W. L. (1952). **A method for the assay of penicillin in animal feeds.**—*Proc. Soc. exp. Biol., N.Y.* 81, 660-665. 836

The authors described a rapid simplified

technique for the assay of penicillin in feeds and feed supplements. The method accurately determines as little as 0.5 g. of procaine penicillin per ton of feed. Feeds not supplemented with antibiotics give small positive values. A sample of unsupplemented feed of the same or similar composition as the sample to be assayed must therefore be available. The test involves observation of the inhibition of growth of *Staph. aureus* 209-P which is suspended in thin layers of agar medium upon which are placed paper pads containing methanol extracts of the feeds.—A.S.

BONE, J. F. (1954). A technic for aspiration liver biopsy in dairy cattle.—*N. Amer. Vet.* 35, 747-752. 837

B. performed liver biopsy on 64 dairy cattle, aged 3 days to 12 years, with no un-

See also absts. 568 (cultivation of tubercle bacilli from bovine sputum); 571 (rapid culture method for tubercle bacilli); 573 (electron-microscopic study of the effect of streptomycin on tubercle bacilli); 576 (using surface-active agents in the staining of tubercle bacilli); 637 (diagnosis of toxoplasmosis); 641 (electrophoresis of F. & M. disease virus); 644 (optimum concentration of chloramphenicol in F. & M. disease tissue cultures); 645 (cultivation of F. & M. disease virus in day-old chicks); 669 (cultivation of sheep pox virus in chick embryos); 670 (cultivation of the virus of lymphocytic choriomeningitis in chick embryos); 674 (cultivation of equine abortion and equine influenza viruses in chick embryos); 675 (cultivation of rinderpest virus in chick embryos); 687 (cultivation of canine hepatitis virus in roller tubes); 691 (cultivation of measles virus); 779 (polarographic method for the determination of the gamma isomer of B.H.C. in cattle dips); 853 (book, laboratory diagnosis of virus diseases).

REPORTS

NORTHERN IRELAND. (1953). *Twenty-sixth annual report of the Agricultural Research Institute of Northern Ireland, Hillsborough, Co. Down, 1952-53.* pp. 38. Hillsborough: The Institute. 839

The stock on the farm on April 30th 1953, (apart from poultry) consisted of 209 cattle, 189 sheep and 488 pigs.

In the dairy herd of 67 cows, health was good except for an increase of MASTITIS. For this, the assistance of the veterinary officers of the Ministry of Agriculture was sought.

Experiments were conducted on pig nutrition—the effects of goitrogenic substances, vitamin requirements and the use of antibiotics for fattening pigs.

In the poultry section it was remarkable that while the percentage of fertile eggs set was higher in the pedigree flocks, the percentage of chicks hatched out from the fertile eggs was considerably higher in the case of non-pedigree birds.—D. S. RABAGLIATI.

AUSTRALIA. NORTHERN TERRITORY ADMINISTRATION. (1953). *Animal Industry Branch, seventh annual report, 1952-1953 (covering activities for the year ending 30/6/53).* [ROSE, A. L.] pp. 30. [Mimeographed.] 840

There was a comparatively high incidence of TB. in some cattle from the Northern Territory (3.18% of 5,000 head slaughtered at

favourable results. [See also *V.B.* 21, 2190; 22, 3926, 3927; 23, 784, 2726.]—R.M.

BLAXTER, K. L., GRAHAM, N. McC. & ROOK, J. A. F. (1954). *Apparatus for the determination of the energy exchange of calves and of sheep.* — *J. agric. Sci.* 45, 10-18. [Authors' summary modified.] 838

The authors gave details of the construction of one open-circuit and two closed-circuit respiration chambers suitable for the determination of the 24-hour exchange of energy of calves or of other animals weighing up to 75 kg. They described gas analysis apparatus and the general technique employed in experiments with the closed-circuit apparatus. This apparatus was preferred for its simplicity and ease of working.

Darwin and 4% of 1,475 slaughtered in South Australia).

BOTULISM was diagnosed among sheep and goats and there were some outbreaks in cattle. The importance of controlling BOVINE CONTAGIOUS PLEURO-PNEUMONIA in cattle travelling by stock routes from the Northern Territory was emphasized. Central Australia appears to be free from the disease and it will be possible to send cattle from this area for fattening in South Australia. ANAPLASMOSIS appeared to be of greater importance than hitherto realised. Survey work on *Boophilus microplus* and "TICK FEVERS" continued. The incidence of BONE CHEWING, OSTEOMALACIA and DEFICIENCY DISEASES in cattle was examined during the severe drought of 1952. Serious PHOSPHORUS DEFICIENCIES were found and in many previously unsuspected regions blood phosphorus values were below normal.

Field observations suggest that cattle which will drink only sparingly from some bore waters may suffer fatal IMPACTION. Experimentally cattle fed on a dry ration and allowed only one gal. of water per day became unthrifty and passed excreta of very low moisture content.

Investigations on poison plants showed that Fuchsia Bush (*Eremophila longifolia*) was toxic for cattle, but a single feeding trial did not reveal toxicity for a sheep. A species of *Crotalaria* did not prove toxic for sheep.

The report includes details of diagnostic work, statistics of animal populations, notes on staff, improvements to stock routes and control of dingoes and rabbits.—H. McL. GORDON.

AUSTRALIA. SOUTH AUSTRALIA. (1953). **The Institute of Medical and Veterinary Science. Fourteenth Annual Report of the Council, July 1951-June 1952.** pp. 89. Adelaide: K. M. Stevenson, Govt. Printer. 841

In a state-wide survey of the incidence of BOVINE MASTITIS milk from nearly 4,000 cows was examined by a number of methods. The use of special inhibitory media failed to overcome the problems of contamination during collection of samples in the field by untrained persons. Instruction in the swabbing of the tip of the teat with cotton wool soaked in methylated spirit before collection of the sample reduced contamination considerably. The incubated milk smear test was unsuitable. The "Weybridge" method gave trouble, especially in hot weather. The method eventually developed is described. The effect of *Str. agalactiae* on staphylococcus β -toxin is used to detect its presence. The effect of the medium, growth inhibiting and growth stimulating substances and other influences on the production of the streptococcal factor is discussed. The loss of milk due to MASTITIS in the state is valued at £750,000 *per annum*. A control scheme, which should save £375,000 *per annum* is described briefly and its cost assessed at £16,000 *per annum*.

A case of avian TB. in a wild bird is mentioned.

Mycobacterium johnei was isolated from 9 out of 164 apparently healthy cattle by culture methods.

Work on *Erysipelothrix* (*Listeria*) *monocytogenes* infections in sheep was continued and is nearing completion.

In 9 flocks, totalling 8,948 sheep, the mortality from SALMONELLOSIS ranged from 2.7 to 6.2%. DIARRHOEA occurred in many more sheep and survivors which had been seriously affected showed a "break" in the wool fibres. It is thought that the epidemic of the summer of 1950-51 was due to the introduction into South Australia of a strain of *S. typhi-murium* relatively virulent for sheep. Possible predisposing factors were that the sheep were on a low plane of nutrition and were overcrowding at watering places. Wild birds spread the infection from flock to flock.

With one doubtful exception examination of samples of egg powder and pulp and eggs themselves did not reveal salmonella infection.

Notes are given of a case of uterine infection with *S. meleagridis* in a sheep, and of *S. muenchen* causing enteritis and septicaemia in a kangaroo.

A survey of the incidence of BRUCELLOSIS was continued, using blood, ring and whey agglutination tests, and in some cases g. pig inoculation. A series of tests on human consumers of milk from known infected herds supported the view that *Br. abortus* infection in man does not depend mainly on the consumption of infected milk.

ASPERGILLOSIS was recorded for the first time in South Australia, and BOVINE CONTAGIOUS PLEURO-PNEUMONIA, after an absence of some years, occurred again.

Investigations on ENCEPHALITIS virus isolated in February 1951, were completed. Details are given of serological tests on human, equine and avian sera from regions where Murray Valley encephalitis was reported in man. There is a brief discussion on the epidemiology of AUSTRALIAN X-DISEASE, thought to be identical with Murray Valley encephalitis of 1951. It is postulated that the condition is primarily a disease of wild birds in sparsely populated northern Australia, and spreads periodically to more heavily populated areas in the south.

INFECTIOUS LARYNGOTRACHEITIS of fowls seems to be clinically mild in South Australia, unlike other states in Australia where explosive outbreaks with heavy mortality occur. The virus isolated in South Australia showed some serological differences from virus from other states.

A survey of PSITTACOSIS in wild birds was continued.

Notes are given on cases of possible APHOSPHOROSIS in cattle showing "bandy legs" or "knock knees", MANGANESE DEFICIENCY in chickens, DENTAL DEFORMITY in sheep, OSSIFICATION OF THE HEART in two sheep in one flock, and a cow with concurrent ARSENICAL POISONING, SALMONELLOSIS and MASTITIS.

Workers at Roseworthy College, S. Australia, showed that symptoms of OXALIS POISONING appeared in sheep to which sufficient *O. cernua* was fed to provide the equivalent of 6 g. anhydrous oxalic acid per day. Detailed results are presented of findings in two sheep dosed into the rumen with 3 g. and 6 g. oxalic acid daily, as a 10% soln. The daily dose was divided and administered 3 times a day. It is suggested that oxalic acid is rapidly decomposed in the rumen. Some is absorbed and at least 20-30 mg. per 100 ml. in the blood can be tolerated without affecting the kidneys. It ap-

pears that it is a sudden "swamping" of the kidneys which causes danger and not a slow deposition of calcium oxalate crystals. It is doubtful if the usual advice to add calcium to the diet is of much value in preventing OXALATE POISONING.—H. McL. GORDON.

I. SUDAN. (1952). **Annual report of the Sudan Veterinary Service for the period 1st July 1951 to 30th June 1952.** [EVANS, J. T. R.] pp. 28. Sudan: McCorquodale & Co. (Sudan) Ltd. 842

II. SUDAN. (1953). **Annual report of the Sudan Veterinary Service for the year 1952/53.** [EVANS, J. T. R.] pp. 21. Sudan: McCorquodale & Co. (Sudan) Ltd. 843

I. Losses from contagious disease were exceptionally low; probably lower than in any year since the last half century. Almost one and a quarter million prophylactic products were administered in control of RINDERPEST and approx. three quarters of a million cattle were vaccinated against BOVINE CONTAGIOUS PLEURO-PNEUMONIA. In the last two years more than half a million cattle have been inoculated against BOVINE CONTAGIOUS PLEURO-PNEUMONIA in the Bahr el Ghazal Province where the disease is now negligible, although in other districts, as in Kordofan, it has increased considerably.

Bovine TRYPANOSOMIASIS still remains a serious problem in the Bahr el Ghazal district, but TRYPANOSOMIASIS was not so prevalent in camels as in the previous year. About 60,000 doses of suramin (antrypol) were issued for the treatment of infected animals and antrycide was used with favourable results for animals which had failed to respond to the former.

Forty-six cases of RABIES were diagnosed: 38 in dogs, compared with 119 in the previous 18 months.

Exports (all to Egypt) included 26,075 cattle, valued at £E.56,036 and 35,077 camels valued at £E.1,188,335.

The report on the research laboratory shows the continued good work of the Department.

II. The year was satisfactory for livestock, the rainy season being good for grazing and better than the average.

The losses from disease were comparatively low and the cumulative effects of mass inoculation against RINDERPEST and BOVINE CONTAGIOUS PLEURO-PNEUMONIA were evident from the increase in the size of the herds.

Over a million cattle were vaccinated against RINDERPEST and, although the disease was widespread, its incidence was the lowest since its biological control was practised and

the losses were negligible.

BOVINE CONTAGIOUS PLEURO-PNEUMONIA was widespread in the southern Sudan and was the most serious obstacle to livestock development.

Two serious outbreaks of ANTHRAX and also several cases of the infection in human beings were reported.

Following the diagnosis of undulant fever in human patients serum agglutination tests were carried out on cattle, sheep and goats. It was stated that *Brucella melitensis* was isolated from the milk of some of the stronger reactors of all three species. All positive cases were destroyed.

The report of the research section shows the continued increase of work in the production of large quantities of biological products.

—D. S. RABAGLIATI.

CYPRUS. (1954). **Department of Agriculture. Annual Report for 1953. Annexure I. Annual Report of the Chief Veterinary Officer for 1953.** [NEAVE, R. M. S.] pp. 11. [Mimeographed.] 844

Vaccination against ANTHRAX is compulsory in Cyprus and only one case has been reported. ENTEROTOXAEMIAS were prevalent in heavily farmed areas; the value of vaccination is slowly being appreciated. NEWCASTLE DISEASE has been the main problem and a universal vaccination campaign should be completed in 1954. Vaccination has controlled BLUETONGUE. There have been no other disease problems of importance.—R. G. MARES.

MAURITIUS. (1953). **Annual Report of the Department of Agriculture, 1952.** pp. 53. Port Louis, Mauritius: J. Eliel Felix, Govt. Printer. [Contains the report of the Senior Veterinary Officer [DARNÉ, A.], pp. 24-25.] 845

The results of the anti-TUBERCULOSIS campaign are encouraging. Concerning CONTAGIOUS ABORTION: there were no abortions in the dairy herd, but agglutination tests were carried out monthly on all cows and heifer calves, all reactors being segregated. All calves are vaccinated at four months of age with Strain 19 vaccine; this is repeated when they reach service age. The year was a bad one for *Oestrus ovis* in sheep and goats. Veterinary assistance was rendered to 8,000 animals in such cases as difficult calving, RETENTION OF THE PLACENTA etc.—D. S. RABAGLIATI.

COLONY OF TRINIDAD AND TOBAGO. (1953). **Administration report of the Director of Agriculture for the year 1951.** [HUTSON, L. R. (Dep. Dir. Anim. Husb.)] pp. 47. Trinidad,

B.W.I.: Govt. Printing Off. 60c. [Items of veterinary interest pp. 5, 6, 10-12, 17, 18, 32-36]. 846

An additional veterinarian was to be appointed. The laboratory dealt with 4,088 specimens, mostly serological test and milk samples.

Twenty-seven cases of bat-transmitted RABIES were diagnosed, the disease being controlled by protective vaccination.

No Government-owned animal reacted to the tuberculin test, but out of 3,887 tests on cattle, 1.4% reacted and out of 1,167 buffaloes tested, 28% reacted. This high percentage of reactors caused great concern.

The only other disease mentioned as occurring in serious proportions was FOWL CHOLERA from which severe losses were sustained by poultry keepers.

A list of new legislation enacted is appended.—D. S. RABAGLIATI.

COLONY OF SEYCHELLES. (1953). **Annual Report of the Department of Agriculture for the year 1952.** pp. 34. Victoria, Mahé, Seychelles: Govt. Printer. [Items of veterinary interest pp. 11-18. D. K. Desal.] 847

The training of local personnel in veterinary science and animal husbandry was continued. The Government dairy herd comprised a stock of 118 head which was in good health except for an outbreak of Cow Pox. TICK INFESTATION was controlled by fortnightly dipping. The av. milk yield of the 83 cows in the herd amounted to a gallon and a quarter daily.

The green turtle industry realised Rs 38,000. The mortality from disease amongst the turtles was insignificant and the slaughtering was supervised by the veterinary department.

—D. S. RABAGLIATI.

NYASALAND PROTECTORATE. (1953). **Annual Report of the Department of Veterinary Services and Animal Industry 1952.** [FAULKNER, D. E.] pp. 27. Zomba, Nyasaland: Govt. Printer. 2s. 6d. 848

Mortality was higher than usual amongst stock, chiefly owing to abnormal rains. TICK-

BORNE DISEASES have been prevalent and of most economic importance during the year. *Rhipicephalus simus*, not previously considered to be a cattle tick, was found on cattle and *R. evertsi*, not previously found in Nyasaland, was detected in the Blantyre area.

The use of a mixture of antrycide methyl sulphate with antrycide chloride as a prophylactic against TRYPANOSOMIASIS in cattle continues to give satisfactory results. DEMODECTIC MANGE in cattle gave considerable trouble and several cases of SENKOBO DISEASE (CUTANEOUS STREPTOTHRICOSIS), caused by a fungus of the genus *Actinomyces* were diagnosed.

A research officer had just been appointed and suitable premises were being prepared. The report also describes Animal Husbandry and livestock improvement experiments.

—D. S. RABAGLIATI.

REPUBLIC OF IRELAND. (1953). **Annual report of the Medical Research Council of Ireland, 1952.** pp. 41. [Mimeographed.] 849

The report covers investigations in biochemistry, the chemotherapy of TB. including the use of *iso*-nicotinic acid hydrazide, but the evaluation of the results of the latter had not been completed by the end of the year. It also describes work on bacteriology; gynaecology; physiology; zoology and the chemical investigation of the treatment of anuria by cortisone.

—D. S. RABAGLIATI.

RAMON, G. (1954). Rapport technique du Directeur de l'Office international des Epizooties pour l'exercice 1953-1954. [Report of the Director of the Office International des Epizooties for the year 1953-54.]—*Bull. Off int. Epiz.* 42, May. pp. 28-51. In English: pp. 52-64. 850

Collected data indicated that F. & M. DISEASE and RABIES were less trouble in countries controlling them by sanitary measures than in those relying on vaccination. The author discussed the problem of MYXOMATOSIS. He emphasized the importance of international co-operation in the control of disease.

—R. G. MARES.

BOOK REVIEWS

THOMPSON, LAV. R. (1954). **Introduction to microorganisms.** pp. xii + 552. Philadelphia (& London): W. B. Saunders Co. 3rd Edit. 27s. 851

This is an introduction to microbiology for student health workers. Little space is given to the identification of micro-organisms, since this is held to be a matter for specialists, and

stress is placed instead on the parasite in relation to health. Where the parasite lives; how it may enter the body and produce disease; how the host responds; how human welfare may be affected; and how disease may be prevented or treated—these are the questions which the author, a specialist in nursing education, sets out to answer in this book. The binding is

sturdy, the paper good, and the subject is explained in good simple English.—A.S.

AUSTONI, M. (1953). *Le leptospirosi. [Leptospiral infections.]* pp. 715. Turin: Edizioni Minerva Medica. 2nd Edit. L. 5000. 852

From his personal experience and from a wide survey of the literature on the subject, the author has produced a monograph on leptospirosis which gives a remarkably clear picture of the distribution of the disease throughout the world, and its various manifestations in man and animals.

It is good to see that, in a work written mainly from the medical point of view, sufficient space is given to leptospira infections in animals to underline the great importance of animals as carriers of infection.

The author gives due prominence to the fact that the majority of cases are non-icterohaemorrhagic, and are purely febrile in nature. Attention is called also to the recent increase in the incidence of meningitis and encephalomyelitis in these infections in both man and animals. A small but important omission is apparent in the lack of reference to leptospiral abortion in animals, which may occur even in the absence of other signs of illness such as fever or jaundice.

There is a bibliography of some 3,000 references. Even so, on checking the work of one or two well known writers on the subject, we find that only about half of their papers are included.

This book should be of great value to veterinarians.—I. W. JENNINGS.

LÉPINE, P. [Chef du service des Virus à l'Institut Pasteur (Paris).] & SOHIER, R. [Professeur à la Faculté de Médecine (Lyon).] (1954). *Techniques de laboratoire appliquées au diagnostic des maladies à virus. [Laboratory diagnosis of virus diseases.]* pp. 479. Paris: Masson et Cie. Fr. 2400. 853

This work is divided into two parts, the first describing the general techniques of the virologist and the second the methods used in the diagnosis of the principal virus diseases of man.

The first part is a most useful compendium of methods used in obtaining, maintaining, cultivating, and titrating viruses and for their serological identification. In general the text is up-to-date and the new entrant in the field will find in it answers to most of his technical queries. In the section on freeze-drying no mention is made of the importance of selecting the med-

ium in which a virus is to be dried. Choice of medium is important if a high titre of virus is to be retained in the dried product.

In the section on laboratory animals notes are given on the white mouse, but no mention of the desirability of using special strains for certain types of work. Notes on the cotton-rat, merion, and hamster are also supplied, but for some reason the rabbit and guinea pig are omitted. In preparing material for inoculation, Ten Broeck grinders have in most laboratories replaced pestles and mortars for all but the toughest of materials and most British workers prefer to use an anaesthetic for the intracerebral inoculation of rabbits and guinea pigs.

The section on egg-inoculations is particularly useful because a number of alternative methods has been collected together and the worker can select the one most suited to his need. A table on page 67 gives the route of choice for a number of viruses.

The chapter on complement fixation should be useful to the beginner. In the section dealing with preparation of antigens we would give more prominence to repeated freezing and thawing followed by centrifugation, a technique that receives brief mention in the last short paragraph, but which often produces a most efficient antigen with a minimum of work. For the micro-tests ordinary spot-test tiles are often used instead of perspex plates. In this chapter proper emphasis is laid on the need for a complete set of controls.

In the section on tissue culture, the authors have collected together the various techniques scattered in the literature and formulae are given for a number of media. Occasional remarks on results obtained by them should prove helpful to others.

Staining methods for elementary bodies, inclusion bodies and a few special histological techniques likely to interest the virus-pathologist form the subject of a chapter, but there is no mention of the preparation of material for examination by the electron-microscope.

Of the second part of the book, the first chapter, on rabies, is that of greatest interest to the veterinarian. As is to be expected in a book written by workers in the Institut Pasteur, this is an excellent review of the techniques used in obtaining a diagnosis. Although potency tests are detailed, no description of the production of vaccines is given, presumably because the authors do not consider they come within the scope of the book.

Twenty-six pages are devoted to influenza, twenty-six to the psittacosis-lymphogranuloma group and nine to variola-vaccinia. Amongst

other viruses that receive attention are those of infectious hepatitis, the encephalitides, the Coxsackie group, yellow fever and dengue.

In appearance, the book is of the high standard now expected for the publications of Masson et Cie. Unfortunately production of books of this type seems now to be just as costly in France as it is in England.

—J. RICHARD HUDSON.

MOZLEY, A. (1954). **An introduction to molluscan ecology. Distribution and population studies of fresh-water molluscs.** pp. x+71.

London: H. K. Lewis & Co., Ltd. 9s. 854

This small book, the fourth of a series in which Dr. Mozley, assisted, as he says by "tribesmen, robbers, officials, business and professional men and, not least, independent private individuals", discusses some of the problems associated with the control of human schistosomiasis, does not differ from its predecessors to the extent that the title indicates. Those chapters which deal with snail ecology are too unbalanced to form an acceptable introduction to the subject and the text is frequently obscure.

There are elementary notes on the *Bilharzia* parasite and on the liver-fluke and a brief reference to Huberdick's 1952 review of the systematics of the Lymnaeidae.

It is difficult to believe that Dr. Mozley's final section on the possibility of using "radiation" for the control of snails was conceived as a serious contribution to scientific thought.

—S. B. KENDALL.

JENKINS, G. L. [Professor of Pharmaceutical Chemistry, Purdue University.], CHRISTIAN, J. E. [Professor of Pharmaceutical Chemistry, School of Pharmacy, Purdue University.] & HAGER, G. P. [Professor of Pharmaceutical Chemistry, School of Pharmacy, University of Maryland.] (1953). **Quantitative pharmaceutical chemistry.** pp. x+534. London, New York (Toronto): McGraw-Hill Book Co., Inc. 4th Edit. 52s. 855

This volume is designed for students of pharmacy, covering the quantitative chemical and physical methods official in the United States Pharmacopeia and the National Formulary. Its use is therefore limited to the extent to which these official methods are inapplicable outside American laboratories.

There are three main sections; general methods, special methods, and physicochemical

methods used in official pharmaceutical analyses. The last two sections are well done and of use to the pharmaceutical chemist. The material in the first and largest section is dealt with much better in many quantitative chemistry books.—D. S. PAPWORTH.

VARLEY, H. [Biochemist, Manchester Royal Infirmary.] (1954). **Practical clinical biochemistry.** pp. vii+551. London: William Heinemann Medical Books, Ltd. 42s. 856

It is seldom that a reviewer can agree with the "commercial patter" on the dust jacket of a technical book, and far too often such advertisements can only give rise to cynical laughter when the book is read. This book can, however, be said to have lived up to the claim that it should be especially valuable to all who have to carry out routine biochemical tests, *i.e.*, to clinical pathologists, hospital biochemists, laboratory technicians, and to workers in university and other laboratories engaged in research work requiring the determination of chemical constituents of body fluids.

The author provides a comprehensive collection of those biochemical tests found most convenient for the hospital biochemist. In a few cases, more than one method could reasonably have been mentioned, but where the need is strong (*e.g.* in blood sugar analyses for which seven methods are given) he has not hesitated to give alternative methods and often discusses their intrinsic merits. Summaries of the findings in health and disease are also included wherever desirable.—D. S. PAPWORTH.

FRANCIS, G. E. [Reader in Biochemistry, St. Bartholomew's Hospital Medical College.], MULLIGAN, W. [Senior Lecturer in Biochemistry, Glasgow University Veterinary School.] & WORMALL, A. [Professor of Biochemistry, St. Bartholomew's Hospital Medical College.]. (1954). **Isotopic tracers. A theoretical and practical manual for biological students and research workers.** pp. xvi+306. London: University of London; The Athlone Press. 37s. 6d. 857

A new book on isotopic tracers for the use of biological workers can usually be greeted with a certain amount of suspicion. Several books of this type are now available, but invariably they turn out to consist largely of theoretical nuclear physics at a plane above

the biologist's head, and fail to give him the introduction to practical isotopic work for which he is looking.

The authors of this volume have succeeded better than most in outlining basic principles. Their first section on theoretical considerations is readable to a biologist lacking advanced mathematical ability, although several loose statements inevitably arise in such a simplification. The book title is a little ambitious in view of the scant treatment given to stable isotopes.

There is a good general account of the principles of the mass spectrometer, but much more practical advice could have been given in this section, and it might have been better to have enlarged this chapter at the expense of introductory theory, or to have omitted the subject completely.

The second section consists of the syllabus of eight-day courses in the use of radioactive isotopes which have been held at St. Bartholomew's Hospital Medical School. The book derives its main interest to the biologist from this section, which has been very well composed. The authors could enlarge this section both in scope and practical details to the advantage of all scientific workers who are obliged to initiate themselves into the mysteries of isotopic work.

—D. S. PAPWORTH.

WHITFIELD, I. C. [Lecturer in Physiology, University of Birmingham.] (1953). **An introduction to electronics for physiological workers.** pp. ix + 236. London: Macmillan & Co., Ltd. 18s. **858**

This book which is not very different from any other well written introduction to electronics, deals with some of those topics which should be understood by all those using electronic methods in physiological research. The level of treatment is suitable for a first-year physics student who lacks mathematical power but is keen on electronics.

Although the book contains a number of vague or unnecessary statements the text in general is presented logically and expertly. Following the essential physical electronic preliminaries of the first half of the book the next hundred or so pages cover noise and interference, filters and attenuators, amplifiers and oscillators, the cathode ray tube and triggers and time bases. Lists of books for further reading are a valuable addition. The present book may be well recommended.—C. J. BRADISH.

DOEHNER, H. [Reg.- und Landwirtschaftsrat. Dozent an der Landw. Hochschule Stuttgart-Hohenheim.] (1954). **Handbuch der Schafzucht und Schafhaltung. Band IV. Die Leistungen des Schafes. Wolle, Fleisch, Milch, Leder, Dung. [Sheep breeding and husbandry. Vol. IV. The produce of sheep—wool, mutton, milk, leather, dung.]** pp. xiv + 670. Berlin & Hamburg: Paul Parey. DM 25. **859**

The first three volumes of this manual of sheep breeding and husbandry, dealing with breeding, husbandry, feeding, and diseases, were published in 1939 and are now out of print. Volume IV, on the produce of sheep, completes the publication. It deals in an exhaustive manner with wool and milk, and to a lesser extent with meat products, leather, and dung; this reflects the minor importance of mutton consumption in Germany, and the relatively major importance of ewes' milk for the manufacture of cheese in central Europe.

The section on wool occupies two thirds of the book, and describes in detail its morphology, histology, chemistry, and physical properties, and the handling and processing of wool at all stages from shearing to garments. There is an account of the recent history of the wool trade in Germany and in other countries, including Great Britain. In the section on meat products, there is an illustrated account of methods of slaughtering and butchering, and of the fattening of sheep. A chapter of statistics gives the world production of mutton and lamb.

The section on milk is interesting in that it indicates the large extent to which ewes' milk is used for cheese manufacture. Accordingly, there is a detailed description of the chemical and physical properties of ewes' milk.

Sheepskin manufacture and the manurial value and utilization of sheep dung are described in a similarly full and interesting manner.

The book is printed on excellent paper, and is very well illustrated by 340 photographs or diagrams. There are bibliographies on each of the subjects covered.—R.M.

I. LEJEUNE, F. [Prof. Dr. med., Dr. phil., Dr. med. dent.] (1954). **Deutsch-Englisches Englisch-Deutsches Wörterbuch für Ärzte in zwei Bänden. Band I. Deutsch-Englisch. [German-English, English-German dictionary for physicians, in two volumes. Vol. I. Ger-**

- man-English.] pp. xxii + 1349. Stuttgart: Georg Thieme. DM 33.
- II. LEJEUNE, F. [Prof. Dr. med., Dr. phil., Dr. med. dent.] & BUNJES, W. E. [Lecturer in English at the Gernersheim Interpreters' College of Mainz University.] (1953). Deutsch - Englisches Englisch - Deutsches Wörterbuch für Ärzte in zwei Bänden. Band II. [German-English, English-German dictionary for physicians, in two volumes. Vol. II. English - German.] pp. xxxx + 1737. Stuttgart: Georg Thieme. 2nd Edit. DM 58.50. **860**

I & II. This handy-sized dictionary was first published in 1951 and this is the second impression, though the two volumes differ, Volume I being reprinted without revision, whereas the text of Volume II has been revised under dual editorship and is therefore a second edition. Each is intended for a slightly different public, Volume I, mainly for the clinician, including

in its scope even colloquial expressions, covers about 43,000 words and phrases; Volume II covers some 75,000 terms including technical terms omitted from Volume I, and many pure Latin and Greek terms are given primarily for their pronunciation in English, where they are no longer in current use in German.

It is unfortunate that although the dictionary—particularly the first volume—was apparently intended for English-speaking users as well as for Germans, the gender of the substantives has been omitted. There are tables giving the key to pronunciation, prefixes and suffixes of Greek and Latin origin, suffixes with special medical significance, and notes on chemical terminology. In the second volume a simplified system of phonetic transcription is used, useful conversion tables are given and there is a bibliography. Both the English and American spellings are given. Both volumes are well printed on Persia paper and well bound.

—F.E.W.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

- BORCHERT, A. (1954). Lehrbuch der Parasitologie für Tierärzte. [Textbook of veterinary parasitology.] pp. xv + 448. Leipzig: S. Hirzel. DM 30.
- EICHLER, W. (1952). Behandlungstechnik parasitärer Insekten. Eine Anleitung zur mikroskopischen Untersuchung und wissenschaftlichen Bearbeitung hygienisch und phytopathologisch wichtiger Insekten und Milben unter besonderer Berücksichtigung von Fang und Zucht, Mittelprüfung und Präparationstechnik. [Control of parasitic insects.] pp. xiv + 286. Leipzig: Akademische Verlagsgesellschaft Geest & Portig K.-G. DM 19.60.
- LAING, J. A. (1955). Fertility and infertility in the domestic animals. Aetiology, diagnosis and treatment. A textbook for veterinary surgeons and students of agricultural and veterinary science. pp. xii + 256. London: Baillière, Tindall & Cox. 35s.
- SEELEMAN, M. (1954). Biologie der Streptokokken. Eine Darstellung der Biologischen Bestimmungsverfahren der bei Tieren und Menschen vorkommenden Streptokokken unter Berücksichtigung der für Milchhygiene und Milchwirtschaft bedeutenden Arten sowie der epidemiologischen Verhältnisse bei den Streptokokken infektionen. [Biology of streptococci.] pp. xvi + 525. Nuremberg: Hans Carl. 2nd Edit. DM 38.50.
- TAVERNIER, H. (1955). Guide de pratique obstétricale chez les grandes femelles domestiques. [Guide to practical obstetrics in large animals.] pp. 375. Paris: Vigot Frères. 2nd Edit. Fr. 3000.
- WALKER, E. P. (1954). The monkey book. pp. 153. New York (& London): The Macmillan Co. \$6.50. 45s. 6d.
- WILLIAMS, H. (1954). Don Quixote of the microscope. An interpretation of the Spanish savant Santiago Ramon y Cajal (1852-1934). pp. 255. London: Jonathan Cape. 15s.

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